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ORIGINAL ARTICLES.

RHEUMATOID ARTHRITIS, WITH REPORT OF TWO CASES.

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Despite the increasing literature on the subject of rheumatoid arthritis, the ultimate nature of the disease is far from clearly established, and even at this date we do not positively know just what affections of the joints should be grouped under the name. Nothing so clarifies the nosographic atmosphere as the discovery of causes—only through causal knowledge are we able to separate diseases that are similar and to assign to them a definite place in our systems. How easy it has become for us to define typhoid fever, diphtheria, and malaria, since their etiology has been determined. As we are still unable to point out the true cause of rheumatoid arthritis, it would, I believe, be better, following the example of Virchow, Garrod, and others, to use the phrase *arthritis deformans*, as that expresses the most prominent symptom and is non-committal on the score of pathogenesis.

Morbid anatomy.—The lesions produced by arthritis deformans vary considerably with the period or stage reached by the disease. The earliest changes probably always take place in the articular cartilage, and consist in a perpendicular fibrillation of the hyaline matrix of the surface layers. Almost synchronous with this is is a proliferation of the cartilage cells. Softening and fatty processes develop later and cause erosion and disappearance of the cartilage, especially at the lateral parts of the joints, where pressure is greatest. Islands of cartilage may remain and undergo thickening. In the deeper parts of the cartilage ossification may take place. Very marked alterations also affect the synovial membrane and capsular ligament, which become irregularly thickened and distended from the formation of numerous villous processes. Chondrification and even ossification may take place in the latter, and by detachment free bodies may be formed. The bone changes are very striking. In those places where the cartilage is eroded, friction leads to polishing of the exposed bone. In the subchondral areas bone absorption takes place—here it can not be due to friction—and the amount of destruction may reach astounding proportions. While all these changes are in progress new bone is being formed in other parts of the joint, and thereby extensive irregular osteophytic outgrowths are produced, which may entirely surround the joint and contribute to the enlargement. Partial or complete ankylosis, not rarely in strange positions, is a common terminal result.

At times the disease is strictly limited to parts of the articular surfaces, as in the cases reported by Bennett.[1] In one of these the scapulo-humeral joint was normal, but the lesser tuberosity of the humerus was ground down to its base and the inner lip of the

bicipital groove was gone. In a radius, from another case, the depression for the scaphoid bone was cut clean away, while the fossa for the semilunar bone was free from disease.

Next to the arthritis the most important morbid change is an atrophy of the muscles in the neighbor-

[1] Bennett: Dublin Jour. Med. Sc., 1895, C., p. 383.

hood of the affected joint. The muscles are paler than normal, and microscopically are seen to be smaller, but their striation is preserved.

The symptoms and manifestations of arthritis deformans permit us to distinguish several clinical varieties which, following in the main the systematic writers, I would designate as follows: 1. *Arthritis deformans* of severe type. 2. *Arthritis deformans* of mild type. 3. *Localized form*, and perhaps, 4. *Arthropathy*, or that form associated with gross lesions of the nervous system. Although it is customary to separate sharply the severe form from the mild, we must admit that there are many gradations bridging the chasm between the mildest, Heberden's nodes, and the severest, the terribly deforming variety.

Time is too brief to enter into the symptomatology of the various forms, but I would call your attention to the revelations of the Roentgen ray when employed in the study of this disease, by passing around these radiographs kindly made for me by Dr. Stern. It may not be out of place to say a few words about the nodes to which Heberden called attention in the following words: "What are those little hard knobs (*digitorum nodi*) about the size of a small pea, which are frequently seen upon the fingers, particularly a little below the top near the joint? They have no connection with the gout, being found in persons who never had it; they continue for life, and being hardly ever attended with pain or disposed to become sores, are rather unsightly than inconvenient, though they must be some hindrance to the free use of the fingers." (Commentaries, 1818, p. 109.) The affection gives rise to an enlargement of the terminal joints of the fingers, which may be spindle-shaped or abruptly nodular; in time, deflection of the last phalanx occurs, and, differing from the hand as a whole, which is tilted toward the ulnar side, it takes place toward the radial side. There is also a slight rotation. It is commonly stated that the thumb is not affected, but while, as a rule, it escapes, it does not always do so, and I have recently seen two cases in which it was involved. Heberden's nodes are found most commonly in women, and begin to develop at the menopause or later. They occur also at an earlier period before the catamenia have ceased

I show a pencil sketch of a hand (p. 259) the seat of early rheumatoid changes, from a woman of 40, in whom the disease developed two years ago, a month after an attack of diphtheria. I may add that the patient has had three attacks of articular rheumatism, the last fifteen years ago, and has suffered for a number of years from exophthalmic goiter. Menstruation is regular.

Although the disease, when it manifests itself as Heberden's nodes, shows usually no tendency to spread, I have seen it do so in some cases that were under 50 years of age when the malady commenced. (In one patient it was associated with deformity and stiffening of the wrists.) For this reason I have ven-

tured to assert that we can not separate Heberden's nodes sharply from the other forms, and am of the opinion that they are a manifestation of the same disease and are not a variety of gout. As we see the condition in aged women and men, it is generally not progressive.

Heberden's nodes are very common in women who have done much washing, but I have seen them in those who have never toiled at the wash-tub.

When we come to consider the pathogenesis of the disease, we are confronted by a multiplicity of theories that is quite perplexing. They may be classified in the following way:

1. *That the disease is a form of chronic rheumatism*, a theory maintained by Tooth, Charcot, Mitchell Bruce and others. Against this may be urged: *a*, the rarity of endocarditis and other visceral lesions in arthritis deformans; *b*, the exciting causes of true rheumatism can generally not be traced in the typical severe form of the other disease; *c*, the frequency of the affection in women, the reverse being true in the case of rheumatism; *d*, the usual failure of the salicylates.

2. *That the disease is a product of the mixture, in varying proportions, of the inherited taints of rheumatism and gout*, causing in one case the gouty element, in another the rheumatic element to preponderate.

3. *That it is allied to gout and is due to uric acid*, which causes the joint changes, but is again dissolved out, while in gout it remains in the joints (Haig). The view that arthritis deformans is a modified form of gout has long been abandoned. The factors leading to the development of the two diseases are totally different; the preponderance of the female sex, the absence of tophi, the occurrence of arthritis deformans in early childhood, all serve to distinguish it from gout.

4. *That it is of nervous origin.* In favor of this are the symmetric distribution of the lesions, the muscular atrophies, the absence of visceral lesions, and the general *bien-être* of the patients, which in a sense corresponds with that seen in many cases of chronic spinal sclerosis. The nervous theory appears under several phases: *a*, It has been held, as suggested many years ago by J. K. Mitchell, that arthritis deformans is primarily *a spinal disease*. The great resemblance between the joint changes of rheumatoid arthritis and the arthropathies of tabes dorsalis and syringomyelia might seem to lend support to this view; however, in true rheumatoid arthritis the spinal cord, when examined, has always been found normal. Yet there may be nutritive changes in the cord that elude our search. *b*, The disease has been ascribed to a *peripheral neuritis*, largely on the strength of the changes found (Pitres and Vaillard) in the nerves contiguous to the joints, but these neuritic phenomena are more likely consequential or at the most synchronous rather than antecedent, and accompany arthritic muscular atrophies of other kinds. *c*, The disease is a *trophic affection*—a trophoneurosis. Under the vague head of trophoneuroses we are accustomed to class a number of affections, such as scleroderma, Raynaud's disease, acromegaly, characterized by marked structural changes, for which we have no satisfactory explanation. The nervous system undoubtedly governs the nutrition of all parts of the body, whether by reason of its power to regulate the blood supply or through the exercise of a direct trophic influence, must for the present be left unanswered. It is conceivable that, as the joints are under the control of the same forces, a disturbance of the latter might bring about nutritional changes in the articular structures. But the factor that underlies the nervous disturbance remains hidden. *d*, *Uterine or utero-ovarian irritation* acting reflexly through the nervous system (Ord, Armstrong).

5. *That it is infectious.* This view was first promulgated by Schueller (Langenbeck's *Archiv f. klin. Chir.*, 1892, Bd. 45, Heft 1; *Berlin. klin. Woch.*, 1893, Sept. 4), who found a bacillus in the joints with cultures of which he was able to produce articular changes in animals quite analogous to those observed in man. More recently Bannatyne, Wohlmann and Blaxall (*Lancet*, April 25, 1896) have found a peculiar bacillus, both in the joints and at times in the blood, with which, however, they were not successful in producing unequivocal joint changes in animals.

I have given these theories at some length, with comments upon some, but in the end it can only be said that our present knowledge does not warrant a final decision on the question of the pathogenesis of arthritis deformans.

It is unnecessary to enter into a detailed account of the symptoms of the severe form, that associated with marked deformity and great restriction in mobility of the joints. I give here a summary of two cases, as they illustrate the symptoms quite well:

Case 1.—Mrs. F., whom I saw with Dr. Clarke of Philadelphia, was born in Pennsylvania, of Irish parents. She has been married sixteen years and has had eight children, the youngest of whom is 5 years old. The family history is exceptionally good. Mrs. F. was never very strong; menstruation began at 12 years of age, and was always regular except when inter-

rupted by pregnancy and lactation. From her 17th to 38th year, the latter being her age at the time the present disease began, she was subject every spring and fall to peculiar weak spells characterized by palpitation and a feeling of debility. Ten years ago she had an attack of acute cystitis. The *arthritis deformans* began five years ago, during her last pregnancy, with pains, soreness, and stiffness in the cervical vertebræ, and on the evening before her confinement the left shoulder and arm became similarly affected. During the puerperium the other joints were involved in the following order: Right shoulder, right knee and ankle, left knee and ankle, and by the end of the sixth week both elbows, wrists, and hands. She also had slight stiffness, soreness, and tenderness in the temporomaxillary joints. Pain has disappeared in the joints most severely diseased. Her present condition is as follows: The left elbow is somewhat enlarged, especially on the inner side, and slightly flexed; pronation and supination are restricted, and there is distinct grating on movement. The left wrist is quite stiff, backward motion being particularly limited; grating is also present. The natural contour of the wrist has disappeared, and the forearm, wrist, and hand present a continuous, unbroken outline. The back of the hand is sunken in, and the knuckles are unduly prominent. There is atrophy of the interossei and of the thenar and hypothenar eminences. Preternatural mobility of all the knuckle joints, including the metacarpophalangeal joint of the thumb, is present. The middle joints of the fingers are slightly enlarged and tender to the touch; the last joints are apparently free from disease, but with that of the thumb are hyperextended. The right elbow is enlarged and partly flexed; rotation and supination are more limited than on the left side, and the wrist is completely ankylosed and immovable. The right hand is almost like the left, except that the hyperextension of the last joints is confined to the middle and ring fingers, and is but slight. There is marked roughening and grating of the knuckle joint of the right index and enlargement of the head of the metacarpal bone. The finger is so loose that it can be rotated in a considerable arc on its longitudinal axis. Pain is absent in the joints. The nails of both hands tend to be longitudinally ridged. The cervical spine is affected, the rotary movements of the head being embarrassed. There is impaired mobility of both shoulder joints.

Lower extremities.—The right knee is enlarged and its motion impaired, especially extension. The patella does not float; the synovial capsule is thickened. Motion gives rise to pain and to cracking audible at a distance. The movements of the right ankle are impaired; the toes are stiff, but not markedly deformed. There is slight edema of the leg. The left knee is less affected than the right; the edema of the foot and leg is marked.

Upon moving the larynx a loud, rasping and grating sound is produced by the friction of the roughened cartilages on each other; the voice is somewhat hoarse. The joints of the lower jaw are slightly stiff and the mouth can not be opened to its full width. The thyroid gland is not enlarged. Hands and feet are cold and moist; sweating of other parts, the patient says, is rare. There is no pigmentation except on the instep, ankle joint, and lower part of the leg; its appearance was preceded by a severe burning sensation in the pigmented areas. The heart sounds are normal, the pulse 112. The patient enjoys fair general health and has a good appetite. She has used crutches for a year, but walks with great difficulty and is absolutely unable to climb stairs. She is gradually getting shorter in height on account of increasing flexion of the knees. Blood examination: hemoglobin 80 per cent.

Of special interest in this case are the involvement of the laryngeal cartilages, the absence of pain in the articulations most extensively diseased, and the great resemblance which the joints bear in their appearance to the arthropathies of spinal diseases. It is worthy of note, too, that the arthritis began during pregnancy.

Rheumatoid arthritis, like diabetes mellitus, appears to be more baneful the younger the patient attacked. In adolescence and early adult life recoveries are rare. The following case illustrates the possibility of arrest and partial cure of the disease:

Case 2.—Miss Martha M., a milliner, 23 years of age, was always healthy, fond of society, and a passionate dancer. Constipation and occasional headaches were her only ailments. The family history is of interest, as the mother is a sufferer from a rather severe form of rheumatoid arthritis—the disease came on at middle life and began with the formation of Heberden's nodes. The father is afflicted with chronic bronchitis and emphysema, and is subject to digestive disturbances, probably lithemic in nature. In the summer of 1893 Miss M. visited the World's Fair, and very injudiciously wandered about the grounds every day until almost exhausted. On her return she went to Atlantic City, and one day, September 4, while bathing had a chill, but recovered quickly and walked with friends until very tired. On the following morning she had a peculiar pricking feeling in the bottom of both heels, which abated somewhat the next day, but did not entirely disappear. Very soon it spread to the balls of the toes on the right foot and later also to those of the left. On Sept. 25, 1893, having stood at the ironing-board for two hours, the pain in the feet became excruciating, and she felt as if she were "walking on hair-brushes." She also experienced acute darting pains in the region of the heart, which somewhat hampered breathing. She was compelled to remain in bed for some time, but had no fever. The metacarpophalangeal joint of the right thumb and the right wrist now became diseased, and were swollen and stiff on motion. She had to be carried down stairs, but was for some time able to walk up stairs unaided. When lying down or sitting with the feet elevated she had no pains. From October 14 she was in bed three weeks, but without any benefit, and at the beginning of 1894 the great-toe joints, the ankles, and the knees became swollen and stiff. She was unable to stand on her feet; it seemed to her as if they were terribly bruised and unable to bear the weight of her body. Her appetite was good and apart from the joint trouble she had no complaint except transitory precordial pains.

I saw the patient at her home March 6, 1894. She was a tall, pale, blonde young woman, fairly well nourished and refined. The left ankle was swollen, but there was no pitting, tenderness or redness of the skin. Both feet seemed to be unnaturally thick, yet were well arched; severe pain was caused by compressing the toes at the heads of the metatarsal bones. The metacarpal joint of the right thumb was greatly enlarged, through an increase in size of the head of the metacarpal bone. Abduction of the thumb was restricted. There was neither tenderness nor spontaneous pain; considerable atrophy of the first dorsal interosseous muscle existed. The grasp of the right hand was almost *nil*. The right wrist was enlarged but not painful or tender; pronation and supination as well as flexion of the right forearm were greatly limited. A soft blowing systolic murmur was audible at the apex of the heart. The bowels were so constipated as to yield only to enemata.

The treatment first employed consisted in alternate hot and cold douches; they were of no benefit. Counter-irritation was also fruitless. On March 14 she had a febrile attack, during which the heart murmur grew louder, gallop-rhythm was superadded, and a soft systolic murmur became audible at the aortic cartilage. Dr. S. Solis-Cohen saw her with me at this time. Under the use of ammonium salicylate the acute symptoms rapidly vanished, but despite various forms of local and internal medication the joint disease progressed, spreading from the ankles, which were both involved, to the knees. The latter became irregularly enlarged and painful, and assumed a state of flexion, but were neither red nor tender to the touch. By May the flexion was very pronounced, the patient being unable to stretch the legs. I then applied an extension apparatus, such as is used for fractured thigh, to both legs, and was able to secure complete extension in about six weeks.

The patient's temperature was as a rule normal or but slightly elevated; the pulse was rapid, 96 to 100; the extremities, particularly the hands and feet, cold and clammy. At long intervals slight febrile movements occurred, rarely lasting more than twenty-four to forty-eight hours. The tongue was nearly always coated, but the appetite and the digestion were usually good. The knee jerks were exaggerated, and there was ankle-clonus; the plantar reflex was present. Sensibility to touch, heat, and cold was not disturbed. The atrophy of the first dorsal interosseus of the right hand grew perceptibly greater; gradually, too, the power of movement in the hand and arm became so restricted that the patient could not comb her hair, and had to feed herself entirely with the left hand. The urine was variable, but usually had a high specific gravity, 1028 1036; once it was only 1011; on one occasion it reduced bismuth subnitrate and turned Fehling's solution green without precipitation; it was free from albumin, and often alkaline in reaction.

Toward the end of June a marked but transitory improvement occurred. In July the dorsal portion of the spine became stiff and painful and the trunk movements restricted. A blister was applied and proved very efficacious; the disease did not spread and perfect suppleness gradually returned. In August the patient's condition was very bad; all the affected joints, feet, ankles, knees, right wrist and hand, were stiff; the skin over the small joints was cyanotic; and she complained of shooting pains in the joints and stiffness of the neck. The

right index and right thumb were preternaturally movable, and distinct grating could be heard and felt. In September the darting pains attacked the left thumb and an enlargement of the metacarpophalangeal joint followed. About this time Dr. Pepper saw her with me and agreed as to the nature of the case. At his suggestion, hypodermic injections of the double chlorid of gold and sodium were given twice daily. Later on I placed the patient on thyroid extract, but almost immediately alarming toxic symptoms, those of thyroidism, developed, and the remedy had to be abandoned. Throughout these months she was taking tonics, cod liver oil, arsenic, syrup of the iodid of iron, etc., and also received inunctions of cod liver oil; occasionally salicylates were given; faradic electricity was also tried. By November the legs had again become flexed and extension was reapplied and kept on for two and a half months. Bone-marrow was administered for a few weeks in 1895, but without practical result. The disease continued to advance—the right shoulder became involved, and atrophy of the shoulder and scapular muscles occurred. The circumference of the right arm at the axilla was 3 cm. less than that of the left. At no time was the patient's condition influenced in the slightest degree by change in the weather.

The use of strontium bromid was now begun and, whether *propter hoc* or *post hoc*, the patient began to improve; in April, 1895, she was able to walk around the bed by holding on to the railing; on July 1 she walked out into the yard, but the following day had a relapse and was again confined to bed, internal treatment being continued and systematic massage being given. Improvement now became continuous and progressive, and in November she ventured out and walked eight city squares the first day. Last year and this spring she again worked at her trade, and recently consulted me as to the advisability of getting a bicycle. She tells me she has almost forgotten her long illness, the vestiges of which are, however, unmistakable, though they do not trouble her any. The heart murmur has entirely disappeared; there is now only slight accentuation of the second aortic sound; the pulse is regular but a little rapid. Motion in the shoulder, knee, and ankle joints is perfect; the deformity of the right wrist has nearly disappeared, and that of the right thumb is greatly lessened. Abduction of the thumb is, however, still restricted, and there is occasional crackling in the knee joints when she rises from the sitting posture. The ankle clonus can no longer be elicited.

To recapitulate: A young, healthy woman, with a family history of rheumatoid arthritis and lithemia, was taken ill after a sea bath with peculiar pains, soon followed by joint enlargement, destruction of cartilage, atrophy of the muscles, and contraction of the joints, all fairly symmetric. A heart murmur was present; the knee jerks were exaggerated, and there was ankle clonus. After continuous confinement to bed for seventeen months, improvement set in and was followed by a practical recovery.

The treatment was so varied and manifold that definite conclusions can not be drawn from it, but I beg to call attention to the following points: 1. The importance of preventing contractures and the efficient value for this purpose of the extension apparatus. I am convinced that had it not been applied the patient, although the disease is arrested, would now be unable to stand or walk. It has also occurred to me that an analogous device for the arms in certain cases might be of great service. 2. From the apparent effects of strontium bromid in this and other cases I am led to the view, still tentative however, that it has: *a*, an influence over the pains; *b*, perhaps a power to limit the progress of the disease.

A Characteristic Symptom of Lesions in the Posterior Cranial Fossa is the peculiar dyspnea whenever seated upright, relieved by resuming the reclining position. The breathing becomes very slow, deep, snoring, and interrupted by frequent pauses half a minute long. Two new observations are described in the *Deutsche Med. Woch.*, of June 10. One was caused by a tumor in the fossa, left of the basis cerebri, the other by thrombosis arteriæ basilaris, both fatal.

THE CARDIO-VASCULAR AND RENAL RELATIONS AND MANIFESTATIONS OF GOUT.

Presented to the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1–4, 1897.

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That gout and its varied complications are due to toxemia, possibly to uric acid or to other substances which vary in the blood as it does, is generally admitted. Interstitial nephritis, the common renal complication of gout, is so well understood that I need not dwell upon it in this discussion. There are a few points, however, in the course of development of the lesion to which I wish to call attention, for in most text-books and monographs sufficient emphasis is not placed upon them.

It is, of all renal diseases, the most insidious in onset, and it is intermittent in progress. The kidneys are attacked now and again by uric acid or the toxic agent of gout in microscopic areas, which produce active lesions of almost microscopic size. It is true when we examine a kidney which illustrates interstitial nephritis that we find almost the whole parenchyma involved to a greater or less extent, but this extensive lesion has been slowly developed and is due to the confluence of minute changes which have been wrought intermittently. I have spoken of active lesions of microscopic size. These result in a destruction of glomeruli, tubules and arterioles, and when this destruction has been wrought the scar tissue which is left is inert and represents only a loss of renal function.

If the renal changes of gout are looked at in this way they will explain in part the symptomatology of the affection. As the glomeruli are attacked one after the other, not all of them or most of them simultaneously, and as those attacked today may atrophy and become useless before others are involved, the filtration of water from the blood will be modified only by the very few Malpighian bodies actively affected at the time. Therefore only traces of albumin appear in the urine, in marked contrast to the large quantities which appear when the kidneys are involved in parenchymatous inflammation. The atrophic and destructive changes which involve the renal epithelium cause a degree of renal insufficiency to slowly develop. The endarteritis which often obliterates the caliber of the arterioles and the destruction of capillaries in the diseased areas increases blood pressure. This causes the elimination of abnormally large amounts of urine by those glomeruli and renal tubules which are as yet unaffected and healthy.

The insidious and intermittent development of these lesions explains fully the pathognomonic symptoms; polyuria, with traces of albumin, few renal casts, diminished elimination of urinary solids and high arterial tension.

High arterial tension in gout is due in part to uric acid or other toxic substances in the blood which increase the tonus of the arterioles. The destructive agent, whatever it is, that attacks the kidneys produces also arterio-sclerosis or atheroma in the arteries of other tissues. The thickened and rigid walls of the arteries impede circulation, which stimulates the heart to contract more forcefully. This is a second factor producing increased blood pressure. Arterio-sclerosis in the kidneys, in the central nervous system, in the

various tissues of the body, often produces serious or fatal complications in those who have a gouty diathesis. Because the walls of arteries are weakened by disease and stretched by blood under unusual pressure aneurysms sometimes develop in the smaller or larger arteries. The smaller ones are frequently the cause of apoplexy.

The commonest and most characteristic cardiac change associated with gout is hypertrophy. The left ventricle is chiefly thickened, although when the heart is hypertrophied both ventricles are affected more or less. The cardiac hypertrophy is, without doubt, due to increased work which the heart has to do because of the destruction of some arteries and capillaries and diminished caliber and rigidity of others. These changes in the arteries generally necessitate compensatory cardiac hypertrophy and as the arterial changes become more widely diffused, little by little and intermittently, the cardiac hypertrophy slowly increases so long as the nutrition of the individual is good. Ultimately cardiac compensation becomes impossible, cardiac fatigue, dilatation and exhaustion develop. Endocarditis and pericarditis almost never complicate gout. In this respect the contrast with articular rheumatism is striking. It is true that deposits of urates have been found on the valves in gout, but such cases are extremely rare and exceptional.

These various changes in the kidneys, arteries and heart may occur in podagra or characteristic gout, but are more frequently seen independent of it and often themselves constitute the most marked manifestations of a gouty diathesis.

Treatment, to be of value, must be hygienic. It will aim to prevent the accumulation in the blood of those substances, uric acid or whatever they may be, which produce the vascular, cardiac and renal changes. Necessarily treatment must be continued for a long time. By removing the cause of these complications of gout their progress may be brought to a halt and a patient may be made comparatively comfortable. It is impossible to restore renal tubules and glomeruli which have been destroyed. But it is rare that the renal changes are so extensive that they, of themselves, will prove destructive of life. In almost every instance, when the disease is recognized, enough healthy renal tissue exists so that if its cause is removed the kidneys will continue to do their work fairly well, and maintain a condition of physiologic health even though they are anatomically much deformed. The same can be said of the inhibition of the growing cardiac and vascular lesions by suitable treatment.

CHRONIC INFLAMMATION AND ULCERATION OF THE DUODENUM, WITH RESULTANT REFLEXES.

Presented to the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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The duodenum is abundantly supplied with arterial blood. Its veins empty into the portal vein, any obstruction of which, either from the lungs, liver or heart, produces passive congestion of this organ. Its nervous connection with the brain is by branches from the par vagum and with the spinal cord by branches from it, with the sympathetic system by branches from the solar plexus, and with the thoracic plexus by the splanchnic nerve. It has within its structure the plexus of Meisner and Auerbach. It is studded with the glands of Lieberkühn and Brunner, and with solitary glands as well as lymphatics. It is the physiologic receptacle of the chyme which is often perverted by functional disease of the stomach or overrepletion, either of which may be highly irritating to the duodenum. It also receives the secretion from the liver and pancreas and performs, possibly, as important a function in the digestive process as does the stomach, and is as frequently subject to physiologic hyperemia. Indeed, there is no structure in the human body which is so often exposed, both internally and externally, to as many varieties of disease-producing forces as the duodenum. It is directly connected with the brain, spinal cord and sympathetic system as no other portion of the alimentary canal is, which fact makes it the great reflex center of this canal.

Careful analysis of a large number of cases of reflex irritation supposed to have originated at other points of this canal, disclosed the fact they always originated in the duodenum. It is far more frequently diseased than one would infer from the scant literature on the subject.

In my clinic at the University Medical College of Kansas City, Mo , 10 per cent. of the cases had chronic inflammation and ulceration of the duodenum. In my private practice the percentage is about the same. As compared with chronic gastritis—or so-called catarrh of the stomach—it is far more frequent. In 17,000 clinical patients I found 666 of duodenal disease, and only one case of chronic gastritis and one of ulcer of the stomach. In fact, I never saw a case of chronic inflammation of the stomach, excluding chemic and other irritants as causative, that did not proceed by extension from inflammation of the duodenum. It is most often found between the ages of 20 and 40, but it frequently occurs in childhood, the result of enterocolitis or cholera infantum. It occurs in females more often than in males because of their more numerous reflexes.

Typhoid fever is the most frequent cause. Other causes are phthisis pulmonalis, functional disease of the stomach, croupous dysentery by extension, the exanthematous fevers, particularly rubeola, acute inflammation of the organ, passive congestion, burns, acute inflammation associated with pneumonia, which obstructs the bile ducts, producing what the older writers called bilious pneumonia, and reflex irritation, the result of disease of the uterus and appendages.

Brown-Séquard asserted years ago tnat reflex irritation was sufficient to arrest secretion and nutrition, and produce inflammation. This fact is beautifully illustrated in severe burns of the skin, which, by reflex irritation, result in acute inflammation of the duodenum, and *vice versa*, irritation of the duodenum will produce inflammation of the skin, as in urticaria and eczema. In childhood we have a clear example of the effect of irritation of the intestinal canal, producing reflex irritation of the nerve centers, attended with functionary changes in the blood of these centers, thereby producing convulsions.

Esquirol, Pinel, Cullen and others believed and taught that gastro-intestinal irritation was a frequent cause of insanity, yet they were not able to give a reason why this should be so. In the light of mod-

ern science and our knowledge of reflex irritation producing fluctionary changes in the blood, they were not far wrong, as is illustrated by the following case:

Case 1.—June 10, 1875, Mr. P., aged 35, no hereditary tendency to insanity, a well-to do farmer, had always enjoyed excellent health until three years before, when he had an attack of typhoid fever with serious bowel complications; during convalescence there was no restriction in his diet, which had much to do in leaving him with a chronic inflammation and ulceration of the duodenum. In 1877 he presented himself to me for treatment. I found him suffering with melancholia, with suicidal tendency, dependent upon reflex irritation caused by chronic inflammation of the duodenum. I placed him under treatment for this disease. As soon as the irritation was controlled he began to improve, and so continued steadily until restored to health.

In the last twenty years I have treated seven other cases of insanity, the causes of which could be clearly traced to reflex irritation produced by disease of the duodenum. Four of these cases were the after-effects of typhoid fever; two of them were from functional diseases of the stomach, and the remaining one was from acute duodenitis, associated with pneumonia, which became chronic.

Epilepsy as caused by reflex irritation.—Statistics show, excluding traumatism, heredity and alcoholism as causative forces in producing epilepsy, more than one half of the cases of this disease begin in childhood. It is my opinion that a very large percentage is the result of reflex irritation caused by chronic inflammation of the duodenum, as is illustrated by the following case:

Case 2.—May, 1870, I was called to see a child 2 years old. *History.*—The previous summer, while teething, he suffered for six or seven weeks with entero-colitis; for five or six weeks before I saw him he had been suffering from unconscious spells of *petit mal*; the day before he had *petit gravior*. Diagnosing epilepsy dependent upon reflex irritation caused by chronic inflammation of the duodenum, I placed him under treatment for this disease and he eventually recovered.

Case 3.—In November, 1880, I was consulted in regard to a child 8 years old, who had begun to have *petit mal* in July, 1880. The disease was now *petit gravior*. There was not sufficient history of intestinal disease to point in that direction for cause, excepting malnutrition, nor was there any hereditary history of epilepsy or neuropathic diathesis. January, 1881, the child died of broncho-pneumonia. Postmortem examination revealed two ulcers in the upper portion of the duodenum surrounded by zones of inflammation.

I have treated seventeen other cases of epilepsy, between the ages of 2 and 17 years, caused by reflex irritation excited by duodenal disease. Those I have seen during the first six months of the existence of the disease have recovered; one at the end of the second year recovered; of those in whom the disease had existed over three years only one recovered, the others were not benefited. I think it is fair and logical to believe that if the cases are seen early a large percentage of them can be cured; but when the epilepsy has existed for more than two or three years, although you may relieve the cause of the irritation, the fluctionary changes in the blood become a fixed habit, and is more difficult to treat than the primary cause of duodenal irritation; add to this the strong possibility of changes in the structure of the nerve centers, caused by perverted nutrition, the result of the functionary changes in the blood plus habit, and the case then becomes hopeless. In a large majority of the cases of duodenal disease the patient suffers more or less from neurasthenia, but there are cases in which it is the prominent effect of reflex irritation.

Case 4.—Age 34, female, married, mother of four children. Family history perfect; said to have had lacerated cervix uteri, for which she was operated on with the assurance that a cure of this would relieve her neurasthenia. This was in 1881; she was not benefited by the operation; had had typhoid fever in 1880. I saw her in 1883, when she had suffered from neurasthenia since the middle of 1881. I diagnosed chronic inflammation and ulceration of the duodenum with resultant reflexes. I placed her under a course of treatment and at the end of four months she had entirely recovered.

Pharynx and nasal cavities.—It frequently happens that we find pharyngitis and rhinitis associated with chronic duoduenal diseases. I report the following case: Four years ago Prof. J. E. Logan of the University Medical College of Kansas City, Mo., referred a case to me for treatment, with the statement that the rhinitis, which was attended with distressing sneezing, was caused by reflex irritation. On examination of the patient I found her suffering from chronic inflammation and ulceration of the duodenum, caused by long continued functional indigestion of the stomach. I placed her under treatmant for duodenal disease only, giving no attention whatever to the nasal or pharyngeal inflammation. She rapidly improved, ceased sneezing within a week. and at the end of four months was perfectly well.

Diseases of the skin.—That urticaria is entirely dependent upon reflex irritation originating in the duodenum can not be doubted. The same is true of many of the forms of eczema, a fact which I have verified in a large number of cases by diagnosing the existence of duodenal disease, the successful treatment of which entirely relieved the skin disease.

Pruritus of the skin.—A case of this disease had been under the treatment of several distinguished dermatologists without relief. I diagnosed chronic duodenal disease following an attack of rubeola producing reflex irritation. The patient was placed under treatment, and as soon as the duodenal disease began to improve, thereby lessening the reflex irritation, the pruritus began to subside, and she was entirely relieved.

In duodenal disease the functional action of the heart is interfered with. It is either increased in frequency and decreased in force or merely decreased in frequency. I have seen it, in different cases, vary in number of strokes from 35 to 120 beats per minute. In many cases the reflex phenomena appear in the lungs, in which there is sighing respiration or asthma. Anemia of the brain is not uncommon. Local hyperemias of the brain with insomnia is also very common.

Over twenty-five years ago my attention was called to the character of food recommended for diabetic persons, which then had no better reason for its use than "that it was best," also to the exclusion of saccharin matter with no better explanation than the above. About that time I treated two cases of pachymeningitis, which were followed by diabetes mellitus caused clearly from irritation or pathologic changes near the fourth ventricle of the brain. I soon learned that opium had no controlling influence in the cases whatever over the amount of urine secreted, differing in this from any case in which I had used it before. Finding later that chronic inflammation and ulceration of the duodenum always preceded all the cases of diabetes mellitus which I treated, I concluded that the real benefit of opium was its controlling influence over peripheral irritation, thereby lessening the reflex influence. My attention was then called to the close relations between this disease and diabetes mellitus. Since that time I have carefully examined more than thirty cases of diabetes mellitus, and found that this disease of the duodenum had preceded every one of

them. Seven of these cases I have verified by post-mortem examinations. In each I found chronic inflammation and ulcerations of the duodenum. There was no other pathologic change of structure except in one where the liver was affected.

It may be a question whether the relation of these two diseases is the result of peripheral irritation producing reflex irritation, thereby affecting the nutrition of the nerve centers that preside over the conversion of starchy and other matters into saccharin matter, or whether it is the interruption of the function of the duodenum and its accessories which arrests or prevents normal metabolic and anabolic changes in our food, and by natural selection the defective products of saccharin matter (glucocids) are taken up by the absorbents and depurated by the kidneys.

The principles that should govern the treatment of this disease and its reflexes are as follows: 1. The organ should be given rest from physiologic hyperemias by excluding oleaginous, saccharin and starchy foods; the nutrition of the patient should be maintained by stomach digestion, rectal alimentation and absorption of the skin. The remedies indicated are those which control reflex irritation and intestinal germicids. If there exists anemia of the nerve centers of the brain, it should be relieved by such tonics as nux vomica, strychnia, arsenic; if general or local hyperemias, by bromids. If tonics are indicated, the hyposulphates of lime, soda and potassa, or the bitter tonics. The iron preparations are injurious. In cases of diabetes mellitus add to the general treatment from 15 to 20 grains of bicarb. of potassa after each meal. Purgatives should be avoided, except those that act on the large intestine. These should be alternated with enemas.

DISCUSSION.

Dr. BORDMAN REED of Atlantic City, N. J.—Up to this time I had not been led to believe that there were as many reflexes from the duodenum as my friend Dr. Allen has given us to understand he has found. I should be inclined to question whether all of his cases were true reflexes, and also whether they came from disease limited to the duodenum. I should be strongly inclined to think that most of the cases he has reported were cases of intestinal toxemia from inflammation of the small intestine. In fact, it is very difficult to differentiate disease limited to the duodenum. The duodenum is a very small portion of the intestine, and its structure is very similar to that of the small intestine below, so that I can not understand how Dr. Allen can be certain the disease was limited to that short distance. The great burthen of evidence from other sources would lead us to believe that the results were more from toxemia, the absorption of various toxins, than from reflexes. However, I am inclined to believe that there are also reflexes from that region. I think we are apt to take too narrow a view of disease. Haig, in his famous book on uric acid, attributes nervous diseases to uric acid causes. On the other hand, Bouchard attributes them to toxemias, and others to other things. I think it probable that all of these agents are concerned in the production of nervous diseases.

Other authorities have differed somewhat from Dr. Allen with regard to the relative frequency of diseases of the stomach and intestine, particularly with regard to ulcer. Andral reported the proportion of ulcers in the duodenum and stomach as 1 to 40. Another author gives 1 to 9. Ordinary round ulcer is much more frequent in the stomach than in the duodenum. The duodenum is also liable to the catarrhal type of ulcer, but the usual kind is the round ulcer due to an excess of acid passing down from the stomach. My own studies and experiments on the acidity of the gastric juice have shown me that a great deal of nervous disease is attributable to an excess of hydrochloric acid in the stomach. The excess of acid may pass into the duodenum and produce irritation, sometimes ulcer, and probably sometimes catarrhal disease. It is a large subject. We should welcome contributions from every quarter, but not be dogmatic in our conclusions.

Dr. ALLEN—The anatomic, physiologic and pathologic points made by me in my paper have not been objected to by my friend Dr. Reed. He objects to the relative frequency of gastric inflammatory processes and those of the duodenum. Answering, I would say that wherever there did exist a question of doubt requiring differential diagnosis between these diseases, the stomach in each case was washed out and its contents thoroughly examined, chemically and microscopically, for the débris of inflammatory processes, which protected me from any possible mistake. The same care was taken in the investigation of the possibilities of the existence of inflammatory diseases below the duodenum, and they were not found. The statement of Dr. Reed that I am not supported by the literature on the subject is true, but he must bear in mind that the literature on the subject is so very meager that I am justified in concluding that investigators have overlooked this very important portion of the alimentary canal. The Doctor attempts to explain some of the phenomena attending these cases by the absorption of toxins. As toxins are never absorbed by normal structure, but only where there are inflammatory processes, there might be a question of doubt as between the causes which produce the phenomena of the cases reported by me. The phenomena themselves can not be explained by the Doctor's theory, but can scientifically be explained by reflex irritation.

DIAGNOSIS OF ASCITES.

Presented to the Section on Practice of Medicine at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

BY JAMES TYSON, M.D.

PHILADELPHIA, PA.

The object of this brief communication is to call attention to a symptom which I think has hardly received sufficient attention at the hands of clinicians and which I know to have been misinterpreted. I allude to tympany in the flanks and its significance in the diagnosis of ascites. It is generally taught that the *absence* of tympany in the flanks is characteristic of ascites; while its presence can not be regarded as consistent with any considerable degree of accumulation of liquid in this region. A case now in my wards at the Hospital of the University of Pennsylvania illustrates the possibility of error arising from a too strict adherence tothis guide. A woman, aged 37 years, was admitted with mitral stenosis and insufficiency, with passive congestion, enlargement and tenderness of the liver, ascites and general anasarca. When lying on her back the lower abdomen was somewhat bulging, and over this region and laterally on both sides as far as a vertical line drawn through the anterior superior spinous process of the ilium, distinct fluctuation and a succussion wave could be elicited. Behind this, distinct tympany could be brought out by percussion in both flanks. It was usually more marked on the right side. So marked was the tympany, and so much in contrast with what seemed usual that experienced men who saw her thought that the condition could not be ordinary ascites but must be a collection of fluid, circumscribed by adhesions. A trocar was introduced and seven pints of clear serum drawn off, such as constitutes an ordinary ascites, emptying the abdomen completely of fluid. As the fluid reaccumulated, the original signs appeared and were followed by another tapping, when an equal amount of fluid was drawn off. This was repeated several times.

Having had this experience with the patient referred to, I proceeded to examine carefully every case of

ascites I met in the wards, and in quite a number I could bring out, by percussion, an area of tympany located as described. It varied in extent and distinctness, and in no case was it as marked as in the woman referred to. It was, however, easily recognizable, though not always in each flank, sometimes being more marked in one and sometimes in another, while it was sometimes present in one and absent in another.

I then proceeded to examine the text-books available and found more frequent allusion to it than I had expected. Thus, in Leube's "Specielle Diagnose der Inneren Krankheiten," vol. i, p. 381, 4th ed., occurs the following: "So kann man unter percutirend neben der Niere nach der Linea axillaris hin, einen schmalen Streifen tympanitischen Schalls finden. Es rührt dies davon her, dass das Colon ascendens und descendens in ihrem hinteren Umfang vom Peritoneum nicht überzogen sind, und deswegen hier kein Transudat liegen kann," *i.e.*, by percussing from the neighborhood of the kidney downward in the axillary line a narrow zone of tympany may be found. This is because the posterior portions of the ascending and descending colon are uncovered by peritoneum in this situation, and on this account no transudate can lie there).

Passing to Strümpell, second American edition 1893, p. 462, I find "the resonance on percussion of the deepest and most dependent portions of the abdomen may be misleading in this way, that *even in ascites* a narrow zone may be tympanitic. This should be remembered."

Turning to American text-books, Da Costa, eighth edition, p. 712, quotes Bacelli that "in ascites there is a deep tympanitic sound during percussion in the region of the intestines, while an ovarian cyst presents dulness on the side in which the cyst has its origin, and a tympanitic sound on percussion on the other." I can not discover that reference is intended to the point to which I allude. In John H. Musser's new work on "Medical Diagnosis," I find no allusion to it, nor in James T. Whittaker's recent "Theory and Practice of Medicine." I find in Osler, p. 508, second edition, the usual statement, viz.: "In the dorsal position, with a moderate quantity of fluid in the peritoneum, *the flanks are dull*, while the umbilical and epigastric regions into which the intestines float are tympanitic." No mention is made of occasional tympany in the flanks.

Wood and Fitz on page 969 of their recent text-book say, "if the intestines contain no gas, or are adherent to the abdominal wall or the mesentery is so short or the quantity of fluid so large that they are prevented from floating to the surface, the dulness is no longer characteristic; but the resonance of the intestines may be found in the lower abdomen *or in the flanks*, in either of which places it may remain even if the patient changes his position." The fact is here pointedly stated, but its connection by a semicolon, with what precedes, would seem to refer it to an unusual condition of the small intestine rather than with the constant situation of the ascending and descending colon. In his article on "Ascites," in Pepper's "American Text-book of Medicine," Dr. Fitz makes practically the same statement.

Dr. Henry M. Lyman expresses the fact much more directly than any other American author, for on page 411 of his recent text-book he says: "If the intestinal canal be free from fecal contents, the region of the cecum and the descending colon will emit a tympanitic sound on percussion, even though the adjacent regions are occupied by dropsical fluid." This is precisely correct.

Of the older but still comparatively recent authors of text-books, Austin Flint, Sr., Henry's edition 1894, p. 530, says: "The exceptional cases in which this test afforded by percussion is not available, are those in which the intestinal coils are fixed by morbid adhesions. This is rare in a case of purely dropsical effusion."

In neither Roberts Bartholow's, Alfred Loomis's or Frederick T. Roberts's text-books do I find the fact referred to. C. Hilton Fagge, on page 309, vol. ii, (American Ed., 1886), says: "Again, when in ascites the border of the dull region is percussed freely, the left hand finger being pressed backward as much as possible, one can often detect a resonant note from the presence of intestine beneath."

Niemeyer (Humphreys' and Hackley's Translation, N. Y., 1870, p. 623), has an interesting paragraph, as follows: "Bamberger advises us to pay particular attention to the spot between the crest of the ilium and the twelfth rib, for in ovarian tumors at that point we generally find the full sound of the larger intestine; in ascites we do not. *Still he acknowledges that this sign occasionally fails.*" Now this is precisely the situation in which the tympany in ascites is occasionally met.

My own book contains a somewhat bungling allusion to it, heightened by a typographical error. On page 386 will be found the following: "There are also two sites posteriorly where a tympanitic note may be produced by percussion, viz., upward (should be *downward*) from the neighborhood of the kidney on each side behind the mid-axillary line, because in this situation in the ascending and descending portions of the colon with the posterior portions uncovered by peritoneum, and therefore inaccessible to the fluid." Evidently in writing this I did not realize the actual facts or I would have made it clearer in the text, though the understanding is quite different if instead of the word "upward" we read "downward." I had evidently read the paragraph in v. Leube without having realized the condition itself. Since I have studied it my notions are clearer and more definite, and it seemed to me worth while to take an opportunity to call attention to the subject and impress it by the models of Steirges after sections of the frozen cadaver, here exhibited, in which the portions of the colon thus exposed are clearly seen. It is to be remembered that the condition is also influenced by various degrees of distension of the colon as well as by the quantity of ascitic liquid.

DISCUSSION.

Dr. ROCHESTER of Buffalo—I was puzzled this winter by a case in the hospital. There was distinct tympany in the right, and slight tympany in the left flank. I tapped and removed fluid.

Dr. HERMAN B. ALLYN of Philadelphia—I have a case in the hospital now which presents this condition of tympany in the flank. I still thought fluid was present, and on tapping withdrew several pints, but, on reaccumulation of the fluid, tympany did not occur. It would seem that it may sometimes exist, while at other times it may not or that it may be a temporary condition.

Dr. TYSON—I rise to confirm what Dr. Allyn says. We found considerable variation in the amount of this tympany at different times and previous to successive tappings. One flank was almost always more tympanitic than the other. It goes without saying that the quantity of fluid makes some difference. You can understand that if there is a large quantity of fluid in the peritoneum pressing upon the colon, there will be less tympany from the colon than in cases in which there is less compression. But I have observed the tympany in large abdominal effusions.

A FURTHER REPORT ON ISCHOCHYMIA (DILATATION OF THE STOMACH).

Presented to the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY MAX EINHORN, M.D.

NEW YORK, N. Y.

The President of our ASSOCIATION, Dr. Nicholas Senn, was the first in this country to direct the attention of the profession to the importance of surgical interference in cases of stenosis of the pylorus. In 1891 Senn published in the *Medical Record* (November 7 and 14) fifteen cases of pyloric stenosis, two of a benignant type and thirteen due to malignant disease (cancer), on which he had operated. In the two cases of benignant stricture the operation consisted in Heinecke-Mikulicz pyloroplasty. In the remaining thirteen, of cancer of the pylorus, gastro-enterostomy was established. In this paper Senn said: "Stricture of the pylorus is a surgical affection and should be treated as such with the same right and for the same reasons as a stricture of the esophagus, rectum or urethra. Reliance on medicine is as deceptive and useless in these cases as in the treatment of stricture of any other organ. Permanent relief can only be secured by prompt surgical interference."

In November, 1894, I[1] read a paper before the German Medical Society of New York on the "Diagnosis and Treatment of Stenosis of the Pylorus." In this address I gave my own experience regarding this condition and suggested the name of "ischochymia" in place of "gastrectasis," "dilatation of the stomach," or "gastric insufficiency of the second degree" (Boas), as being more suitable. This term was intended to convey the idea that stagnation of the food in the stomach is the principal symptom of this affection, and that the abnormal size of the organ is of secondary importance. In this paper I reported four cases of a benignant stricture of the pylorus, in which operations (either pyloroplasty, pylorectomy, or gastro-enterostomy) had been successfully performed, and several cases of malignant stenosis of the pylorus, in which gastro-enterostomy has also proved temporarily beneficial.

Among the more recent literature the paper of Pepper and Stengel[2] on "Dilatation of the Stomach," is noteworthy. These two authors describe all methods which serve to determine the size and capacity of the stomach, but sufficient weight is not placed on the most important symptom—the stagnation of food. This work contains an abundance of casuistic material and is highly meritorious.

Recently I read a paper embodying my additional observations on ischochymia, before the Society of Physicians of the German Dispensary of New York (April 22, 1897). As this affection is of quite frequent occurrence and of great importance to the clinician, as well as to the surgeon, I present a summary of my own experience.

The cases of ischochymia which have been under my treatment may advantageously be divided into the following groups:

1. Cases of ischochymia submitted to operation.
   a. Benign stenosis of the pylorus.
   b. Malignant stenosis of the pylorus.
2. Cases of ischochymia treated by palliative measures.
   a. Benign stenosis of the pylorus.
   b. Duodenal stenosis.
   c. Probably pure atony of the stomach.
   d. Malignant stenosis of the pylorus.

The cases of ischochymia from benign pyloric stenosis submitted to operation comprise ten, of which I shall describe one:

Case 1.—Nov. 29, 1896, A. L., 32 years old, manufacturer, has suffered more or less from pyrosis since his eighteenth year. The appetite was always poor, and the patient was regarded as a small eater; he was troubled with frequent eructations, and was always constipated. During the last two years he has complained constantly of a burning feeling in the epigastrium two hours after meals; the ingestion of food, as well as the administration of bicarbonate of soda, alleviated this symptom for a short time. Four months ago the patient began to experience colicky pains in his upper abdominal region; these usually appeared five to six hours after eating or later at night, especially when he had neglected to take anything for the burning. The appetite was not much changed, sometimes somewhat slighter than previously. Vomiting only occurred infrequently after gastric lavage had been undertaken. The patient stated that on one occasion after washing out the stomach a small quantity of blood was noticed.

Status praesens: Patient is fairly well nourished; color somewhat pale; tongue slightly coated. Thoracic organs normal. Palpation of the abdomen reveals no areas sensitive to pressure. Splashing sound present, and the stomach can be traced to a line one or two fingers' breadth beneath the umbilicus. Peristaltic contractions are not visible. The urine contains neither sugar nor albumin, and is secreted in sufficient quantity.

Nov. 29, 1896. Examination of the stomach in the fasting state reveals a considerable amount of chyme (200 c.c.), consisting chiefly of bread and starchy substances. HCl+, acidity = 48.

November 30. Examination of the stomach one hour after Ewald's test-breakfast: Quantity equals 300 c.c.; HCl+, acidity = 76; slight residue of food from the previous day can be recognized.

December 1. Examination in a fasting condition furnishes a greenish fluid containing a few fine particles of food and of strong HCl reaction.

Deccember 3. Contents obtained in a fasting condition consist of fluid mixed with bile and brownish masses containing only a few food particles. After lavage blackish masses finally appear. The slight stagnation of foods at once awakened the suspicion of a pyloric stenosis of moderate degree, and the brownish masses (altered blood) pointed to the existence of an ulcer in the vicinity of the pylorus. This suspicion was further confirmed by the circumstance that on December 18, 400 c.c. of fluid, containing numerous brownish masses, were obtained from the fasting stomach; at the same time an area of sensitiveness to pressure was present in the epigastrium, especially toward the right side. The patient was now put in bed and a strict cure initiated for the ulcer. From December 18 to 23 he was nourished per rectum, after which small quantities of milk were administered *per os*.

Jan. 2, 1897. Lavage in the fasting state showed the presence of a slight amount of food residue (100 c.c. of chyme mixed with bile); the same condition was noted on January 8.

The diagnosis previously made of a commencing benign pyloric stenosis complicated with ulcer in the vicinity of the pylorus, was now assumed, with greater certainty, in view of the futility of the treatment, and the patient was urgently advised to undergo an operation, the more so since all therapeutic measures had proved unavailable.

The operation was performed by Dr. F. Lange on Jan. 13, 1897. There was found an ulcer on the anterior side of the stomach, closely adjacent to the pylorus; the latter was markedly thickened (rigid) and its lumen narrowed. The ulcer was excised and the pyloroplastic operation of Heinecke-Mikulicz practiced. The mucous membrane of the stomach was markedly swollen and hypertrophied.

The patient rapidly recovered from the operation and has since completely recuperated; he is free from all disturbances and has gained twenty-five pounds in weight.

On reviewing my cases of benign stenosis, I find that the diagnosis of ischochymia and of the conditions which give rise to it (pyloric stenosis, ulcers in the immediate vicinity of, or in the pylorus) can be made with a fair approximation to certainty. In all

[1] Max Einhorn: Medical Record, Jan. 19, 1895.
[2] Pepper and Stengel: The American Journal of Medical Sciences. Jan., 1897, p. 34.

the ten cases operated on, the diagnosis was completely confirmed by the conditions revealed at the operation.

Of these ten cases, eight were cured and two terminated fatally in consequence of shock and cardiac failure shortly after the operation. The latter, however, sought surgical intervention at too late a period, and there can be no doubt but that this was the sole cause of the fatal termination. Of the remaining eight, seven have been completely cured, that is, the patients are able to eat everything without any disturbances and are completely well. One of the patients has been improved, but not completely cured, that is, she continues to suffer now and then from pains which result from cicatrices at the lesser curvature, yet she is able to partake of a more varied diet without the occurrence of a stagnation of gastric contents.

In some of the cases of malignant stenosis of the pylorus I was able to make the diagnosis even in the absence of tumor and also of lactic acid in the stomach, and my experience leads me to conclude that gastro-enterostomy exerts a beneficial, although temporary, effect in this condition. The majority of these patients who have survived this operation gain in weight and pass a much more comfortable existence than could be afforded them by any other measures.

In the cases of ischochymia dependent upon a benign stenosis of the pylorus, or upon a relaxation of the muscular layer of the stomach, improvement could quite frequently be obtained by palliative measures (group 2). This change for the better means that in relaxation of the gastric muscularis, the latter, under appropriate treatment, recuperates and becomes more vigorous, while in stenosis of the pylorus a kind of compensation of the stomach occurs, that is, the organ acts with greater energy, so as to be able to perform its functions notwithstanding the obstruction existing at the pylorus. It can therefore be readily seen that an improvement as a result of palliative treatment can be expected only in cases in which the pyloric stenosis is not very marked; moreover, it is also clear that in the event of improvement from palliative measures we must always be prepared for a return of the ischochymia.

If the symptoms of ischochymia do not yield to medical treatment, surgical intervention is urgently called for, because otherwise a fatal outcome may readily take place. Thus I have observed two instances in which death occurred from starvation.

I will now discuss the chief points relating to the diagnosis and therapeutics of ischochymia.

Diagnosis.—The salient points in the diagnosis of ischochymia is the presence of food residue in the stomach in the morning in the fasting condition, the patient having taken a substantial meal on the previous evening. If this symptom is found to persist for a long time, we have to deal with a serious affection, and it will now be necessary to determine whether this consists in a relaxation of the gastric muscular coat or a narrowing of the pylorus; in the latter case it is further requisite to decide whether a benign or malignant process be present.

The differential diagnostic points which demand consideration are well known to you. It appears to me of importance to analyze the diagnostic significance of some of the symptoms, which, when present, are very valuable, but whose absence does not militate against the existence of pyloric stenosis. These symptoms are:

1. The dilated or abnormally large stomach.
2. The thickened and readily palpable pylorus.
3. The peristaltic restlessness of the stomach.
4. The fermentation products.

1. The abnormal size of the stomach is pathognomonic only if the organ occupies nearly the entire lower section of the abdomen and contains over three to four liters of fluid. Such stomachs are frequently met with in old cases of stenosis of the pylorus and their presence at once awakens the suspicion of a narrowing of the pylorus; before this diagnosis can be made, however, the presence of ischochymia must be determined. In this country considerable weight has been placed on this symptom, as we find in the above-cited article of Pepper-Stengel; yet the absence of this diagnostic sign should not lead us astray. For it is our aim to make the diagnosis of pyloric stenosis as early as possible, while the pronounced, at once perceptible dilatation of the stomach requires some time for its development. Hence, it is not advantageous to apply the old name of "gastrectasia" to designate the entire condition, but to employ instead the term "ischochymia," because this is the most important and at the same time the earliest symptom.

2. If it is possible by means of palpation to map out the pylorus as a smooth oval tumor, and if ischochymia be present and the disease has lasted over one and a half to two years, we can with certainty make a diagnosis of benign pyloric stenosis. Among the cases of this affection observed by me, this symptom was found quite often.

3. Peristaltic restlessness of the stomach was found in two of the operated cases of benign stenosis of the pylorus, and in nearly all of the non-operated cases of this disease. Inasmuch as peristaltic restlessness of the stomach but very rarely occurs as a pure neurosis, this symptom is of great significance for the recognition of stricture of the pylorus, the more so as an examination for this purpose (simple inspection of the abdomen in the recumbent position) is unattended with any difficulty.

The presence of this symptom in connection with the existence of ischochymia, speaks in favor of narrowing of the pylorus, and against simple relaxation of the gastric muscular coat; the absence of this sympton is of no consequence.

4. Fermentation products (formation of lactic acid or gases in the stomach) are observed almost constantly in all cases of ischochymia. Commonly, one or the other kind of fermentation is present, that is, either formation of lactic acid or formation of gases. The lactic acid is found in the stomach in cases where the secretion of hydrochloric acid is considerably diminished, while the development of gas is encountered in cases in which there is an abundant secretion of gastric juice. These points, which have been especially emphasized by H. Strauss[3], I can completely confirm on the ground of my own experience. These fermentation products may be absent, however, notwithstanding the presence of pyloric stenosis, if the proper treatment has been adopted, that is, if the stomach has been washed out several times.

The constant or frequent occurrence of small quantities of bile in the stomach does not in my experience militate against the existence of a narrowing of the pylorus; on the other hand, it appears to me to point to a firm rigidity of this orifice, in consequence of which the latter is never completely closed.

[3] H. Strauss: Zeitschr. f. klin. Medecin.

Among the more recent auxiliary measures which are available in arriving at a diagnosis, the gastroscope has been recently employed by Rosenheim and Kelling. In my opinion, there is no doubt but that this instrument has a promising future, although at present it has not as yet been generally utilized.

Treatment.—In the treatment of ischochymia it is necessary first of all to ascertain the cause of the stagnation of food in the stomach. If this be due to a far advanced benign stenosis of the pylorus, or to a commencing occlusion of this opening of malignant nature, surgical interference (pyloroplastic operation, pylorectomy, or gastro-enterostomy) is indicated. If we have to deal, however, with commencing benign stenosis of the pylorus, or a genuine relaxation of the muscular coat of the stomach, palliative treatment should first be given a trial, while in the event of its failure an operation is demanded.

The palliative treatment in the milder cases consists in the employment of a fluid or semi-fluid diet (milk, soups with finely ground farina, meat broths with egg, egg and milk), lavage of the stomach in the fasting condition, followed by spraying with a one per mille solution of nitrate of silver, and in the administration of medicaments which prevent fermentation. Among these may be used benzonaphthol, salol, bismuth and resorcin. I frequently give

Resorcin	4.0
Bismuth, subnitr	20.0
Aq. dest.	200.0

S. One tablespoonful in a wineglassful of water, three times daily, half an hour before meals.

In severe cases (frequent vomiting, frequent pains, intense burning sensations) it is advisable to keep the patients in bed for about three weeks and to nourish them for five days exclusively per rectum, and then slowly and gradually adopt a milk diet, as in ulcer of the stomach—in this condition, however, much more cautiously and slowly.

Thus, for example, on the sixth day I give only two tablespoonfuls of milk every hour, on the seventh day three tablespoonfuls, on the eighth day four tablespoonfuls, etc., until I have reached 100 c.c. every hour; then I give 200 c.c. every two hours, and increase to 300 c.c. On every other morning I determine by washing out the stomach, in the fasting condition, whether it is empty.

In this manner it is quite frequently possible to adapt the stomach, first to a light and later to a heavier diet. The patients then increase gradually in weight and appear completely well. Yet they can not be regarded as entirely healthy, because we must be constantly prepared for a recurrence of the old affection.

Moreover, in cases where it is not possible to remove the ischochymia by palliative measures, the patient may sometimes maintain a comfortable existence under the sytematic use of washings out of the stomach and the maintenance of a light and rather fluid diet. Such patients, however, are menaced by many dangers and can enjoy but few of the luxuries of life, and for this reason the clinician should insist that an operation is to be regarded as the only correct procedure.

In summarizing this article the following conclusions can be formulated:

1. In the vast majority of cases of prolonged disturbances in the transportation of chyme from the stomach into the intestine, a narrowing of the pylorus exists.

2. The earliest, and at the same time most important, sign of pyloric stenosis is ischochymia; the dilatation of the stomach which is met with here, and which is often so considerable, does not develop until later, and besides, may in exceptional cases occur in the presence of an adequate prochoresis.

3. Ischochymia produced by a malignant neoplasm at the pylorus always demands an operative treatment (gastro-enterostomy, eventually pylorectomy).

4. In cases of ischochymia dependent upon a commencing benignant pyloric stenosis (or ulcer in the vicinity of this orifice) or a relaxation of the muscular coat of the stomach, an effort should first be made to afford relief by palliative measures; if this is not successful, then a pyloroplastic operation or gastro-enterostomy should be performed.

5. Ischochymia due to a benign markedly developed narrowing of the pylorus (in these cases the pylorus can usually be felt as a small tumor) demands early resort to operation (pyloroplastic procedures, if the stricture is not too small and if the adhesions are not too numerous, otherwise gastro-enterostomy).

DISCUSSION.

Dr. BOARDMAN REED of Atlantic City, N. J.—I would ask the author with regard to diet, whether he recommended milk? I had been led to believe that milk is unsuitable in dilatation of the stomach, on account of the difficulty of giving enough without distending the stomach. Most German authorities take that view. I would also ask whether he means that milk should be the sole diet.

Dr. EINHORN—Of late it has been found that a liquid or a semi-liquid diet is suitable for this condition, especially in those cases in which there is suspected stenosis of the pylorus, for thicker substances do not pass through. In dilatation of the stomach, with weakness of the muscle of the stomach, not due to stenosis of the pylorus, there may be a question whether to nourish the patient by liquid or by more consistent food. But even there, if we give small quantities of liquid at a time, I think we can achieve more than by suddenly cutting them off.

A BRIEF CONTRIBUTION TO THE BIOLOGY OF THE MALARIAL PARASITE.

BY R. S. WOODSON, M.D., U. S. ARMY.

NEW ORLEANS, LA.

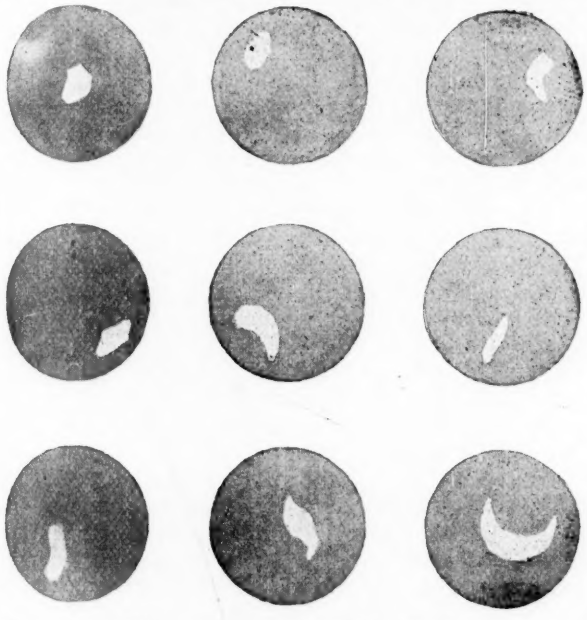
The biology of the malarial parasite is one of the most interesting subjects in modern medicine, the accurate understanding of which is rendered exceedingly difficult to the average practitioner by reason of the conflicting opinions of competent observers as to its life cycle, the function of its various forms and their pathogenic relationship to the various clinical malarial manifestations. The segmentation of the intra-corpuscular parasites, their escape into the plasma of the blood and their reappearance as fresh hyaline bodies in the red corpuscles as described by Golgi, is believed to be the method of reproduction. The evidence that this is the method of reproduction rests upon the very great resemblance between the antecedent and resultant hyaline bodies, and further upon their identity with the fresh hyaline forms that make their appearance just at this time in other red blood corpuscles.

This theory of reproduction is rendered somewhat hypothetic by the absence of visual confirmation. The fact that free hyaline bodies are rarely seen in the peripheral blood and reproductive changes probably take place exclusively in internal organs, would account for the failure on the part of the various

investigators to observe the entrance of the hyaline form into the normal red corpuscle.

By fortuitous accident rather than systematic observation in the routine examination of malarial blood of patients admitted to the Post Hospital, Jackson Barracks, the writer believes he has observed this missing link in the life cycle of the malarial parasite.

Upon examining a specimen of blood, taken with aseptic precautions from lobe of left ear of Private G. F., U. S. Army, who was suffering from malarial fever, intermittent, tertian (time of examination being several hours before paroxysm), the following phenomenon was observed: Field moderately filled with red blood corpuscles, a clear space in center, across this space a round hyaline body, one-fifth size red corpuscle, was seen moving; whether by reason of its own



inherent motility or in obedience to the laws of gravitation was not determined. It was seen to attach itself to a perfectly normal red blood corpuscle and appeared to enter the same, for its outline became less distinct. Further, it acquired ameboid movement and was seen to move about in the protoplasm of the cell, as well as to assume alterations of outline and slight increase in growth, as shown in the accompanying drawings. The parasite after its entrance into the corpuscle was observed by my assistant, Hospital Steward Cleaver, and myself, for two hours, and from its behavior and appearance during this time I feel convinced that we were observing an ameboid hyaline intracellular form of the malarial plasmodium.

Jackson Barracks.

RELATION OF FAT NECROSIS TO THE PANCREAS.

Presented to the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY HERBERT U. WILLIAMS, M.D.

PATHOLOGICAL LABORATORY OF THE UNIVERSITY OF BUFFALO. BUFFALO, N. Y.

As pancreatitis with fat necrosis is not a very common disease I give in the first place an outline of our knowledge concerning it.

The patients are almost exclusively adults. A history of gastro-intestinal disorder dating back for a considerable period is frequently given. Fitz describes the *symptoms* of acute pancreatitis as follows: "Sudden, severe, often intense epigastric pain, without obvious cause, in most cases followed by nausea, vomiting, sensitiveness and tympanitic swelling of the epigastrium. There is prostration, often extreme, frequent collapse, low fever, with a feeble pulse. Obstinate constipation for several days is the rule, but diarrhea sometimes occurs." The affection is usually fatal.

The symptoms therefore are vague and not very characteristic. The disease has been mistaken for intestinal obstruction, and has been confused with appendicitis. However, a correct antemortem diagnosis has been made more than once. The nature of the affection is not generally revealed until the autopsy is performed.

Autopsies on these cases have shown a remarkable uniformity in their findings. The pancreas is either swollen and infiltrated with blood which may have escaped into the adjacent tissue; or it is dark and necrotic. It is frequently separated from its connections by softening of the neighboring necrotic tissue; such a condition of necrosis is generally called sequestration of the pancreas. Accompanying the lesion of the pancreas in a large proportion of cases one finds a striking alteration of the adipose tissues, which is termed fat necrosis. Opaque, white or gray nodules of a soft chalky consistency, reaching the size of a pea or even larger, are seen scattered through the otherwise yellow and translucent fat. They appear in the adipose tissue on the surface of the pancreas and in its vicinity. Confluence and softening of the nodules probably assist in producing sequestration of the pancreas. Similar nodules may be met with in the adipose tissue about the peritoneal cavity at points remote from the pancreas, as in the omentum and mesentery. This condition is termed disseminated or multiple fat necrosis. They are rarely seen in parts not in contact with the peritoneum, but have been observed in the pericardial and subcutaneous fat. Peritonitis is not usually present. Among forty-seven reports of cases of disseminated fat necrosis, in which I could find that the general condition of the body was specified, thirty-five (about 75 per cent.) were described as being fat, frequently as very fat indeed. Among fifty-three cases of disseminated fat necrosis of which I have collected descriptions there were six in which no pancreatic disease was demonstrated.

Pancreatic hemorrhage	6
Hemorrhagic pancreatitis	18
Gangrenous pancreatitis	15
Suppurative pancreatitis	6
Chronic pancreatic disease	2
No pancreatic disease	6
Total	53

Fat necrosis occurs also in connection with suppurative pancreatitis, but less frequently than with the hemorrhagic and gangrenous forms. Curiously enough, it seems only occasionally to have been observed accompanying carcinoma of the pancreas or the conditions leading to obstruction of its duct.

The nodules mentioned appear, under the microscope, to be surrounded by a zone of inflammatory reaction, sometimes with hemorrhages. They are made up of needle-shaped crystals, opaque bodies which may be as large as fat cells, oil globules and amorphous material. The outline of fat cells, but not

their nuclei, can generally be detected within them, indicating that the change consists in an alteration of these cells and their contents. This justifies the name fat necrosis. Chemical analyses show that the change depends upon a decomposition of the neutral oils, which are the normal contents of the fat cells, liberating fatty acids and glycerin. The fatty acids may combine with some of the bases present in the lymph, generally calcium, to form soaps.

As an additional proof of the intimate relation between the alteration of the fat cells and some function of the pancreas, it has been asserted that subjects dying of affections having nothing to do with the pancreas, often exhibit a few small areas of fat necrosis in the adipose tissue about the pancreas or between its lobules. Balser found such areas in 20 per cent. of twenty-five cases examined by him. R. Langerhans recorded a similar observation for 14 per cent. of twenty-eight cases. From paragraphs in the text-books of Ziegler and Weichselbaum, and from remarks of Fitz, Thayer and others, one is led to infer that experiences of this sort are matters of common occurrence. On the other hand, Kasahara encountered fat necrosis in but one of eighty-three pancreases studied by him. I have inspected the pancreas carefully and cut it in thin slices in seventy-four subjects free from pancreatic disease, and have met with but two examples of fat necrosis. In each there was a single small nodule. R. Langerhans has suggested that the alteration may be a postmortem phenomenon, due to the action of the pancreatic juice. In one of my two cases I believe that to have been probable. In the other the change must have occurred before death, as a distinct inflammatory reaction was visible about the nodule.

Furthermore, Balser has described fat necrosis as being often present in the adipose tissue of the hog's pancreas. He found it in this situation in nearly all Hungarian and many Algerian hogs; but less frequently in German hogs. Never having seen any observations in this direction recorded concerning American swine and having been informed by Dr. Salmon of the Bureau of Animal Industry that he knew of none, I examined the pancreases of a hundred hogs. They were studied while they were fresh and were cut in thin slices with a razor. Among these hundred specimens two were found that exhibited fat necrosis in the interlobular fat. In one there were many areas; in the other only a few. These observations may be interesting on account of establishing still more closely the connection between the process in question and the pancreas.

Occasionally fat necrosis has been observed, as for instance in lipomata, in situations where no suspicion of any relation with the pancreas could be entertained. I have several times met with what appears to be the same change in the adipose tissues of the cat in trifling degrees, but not near the pancreas.

Numerous cases of pancreatitis and disseminated fat necrosis have been studied from the standpoint of bacteriology and several varieties of bacteria have been isolated from them. The bacillus coli communis has been found much more frequently than any other form. Its claims to being an important etiologic factor have been seriously considered by some writers. However, nothing has been definitely proven in this direction. In some instances, where the necrotic nodules have been examined, they have been found to be sterile. Hlava injected various bacteria into the pancreas of a number of cats, dogs and rabbits after laparotomy. With the diphtheria bacillus he succeeded in exciting a hemorrhagic pancreatitis with fat necrosis in the cat. His experiment would seem to render doubtful a specific action on the part of any particular organism. This view seems to me to receive confirmation from an observation of mine upon a cat in which a peritonitis due to a micrococcus infection was accidentally produced. The infection spread to the pancreas, leading to pancreatitis and fat necrosis.

An interesting theory to explain the causation of fat necrosis was proposed by Rolleston. This theory refers it to a disturbance of innervation arising in the solar plexus. I am not aware of any work based on pathologic anatomy or experiment in support of it.

Several years ago R. Langerhans suggested that, as the pancreas elaborated a ferment capable of decomposing neutral fats, liberating their fatty acids, this ferment might be responsible for the peculiar change that takes place in fat necrosis. His theory seems plausible, remembering the constant association of that condition with the pancreas that has been mentioned. Langerhans succeeded in producing an area of fat necrosis in a rabbit by injecting an extract of the pancreas of another rabbit into the adipose tissue. This was the only successful one among twelve experiments. His work, furthermore, is open to the objection that bacterial contamination was not with certainty excluded.

Dr. Whitney of the Harvard Medical School placed a ligature about the pancreas in a number of dogs and obtained fat necrosis in one of them. His results have never been published.

Hildebrand and his student, Dettmar, placed a ligature about the gastro-splenic portion of the pancreas in two cats to prevent the discharge of its secretion through the duct; and in six others they performed the same operation and also ligated the veins leaving the organ. In all cases fat necrosis was found about the pancreas. They were also successful in producing it three times by introducing portions of the pancreas of one cat into the abdominal cavity of another. In one instance they obtained it after removing a piece from the organ and leaving the distal portion without ligature. Hildebrand, furthermore, injected pure trypsin into the abdominal cavity and found that hemorrhages into the peritoneum resulted. He suggested that the hemorrhages so frequent in pancreatic affections might be due to trypsin while the fat-splitting ferment was responsible for the change in the adipose tissues.

Rosenbach and his pupil, Jung, with a similar object in view, introduced trypsin and at other times portions of pancreas into the abdominal cavities of rabbits. Out of four trials with pieces of pancreas, they obtained fat necrosis once, using dog's pancreas. On the other hand, Senn, in a series of experiments reported some years ago, found the pancreatic juice innocuous when it came in contact with the peritoneal tissues.

As the results of Hildebrand's work seemed of great importance, I attempted to verify them. Two dogs, one rabbit and seventeen cats were operated on. The cat is particularly suitable for the experiment on account of the abundant omental and retroperitoneal adipose tissue, and because of the accessibility of its pancreas. The pancreas of the cat consists of a duodenal portion, and a gastro-splenic portion, which cor-

responds to the principal part of the human pancreas. The gastro-splenic portion is covered throughout by peritoneum, and is easily reached. In all these animals it was surrounded, as close to the duodenum as was feasible, by a silk ligature tied tightly enough to insure closure of the duct. In about half of the cases as many as possible of the veins leaving this part of the pancreas, were also tied, and the gland was lacerated with a sharp hook passed into it beneath the peritoneum. The condition of the adipose tissues was noted to prevent mistakes occurring on account of the trifling fat necroses occasionally appearing spontaneously in the cat. The anesthetic employed was ether.

Five cats exhibited fat necrosis of a marked type. The change in the fat was characterized by a slight hardening, a dead white or a pale brown tinge, and an opacity, which was easily distinguished when the tissues were fresh and warm. The normal adipose tissue, under these circumstances, is soft, colorless, glistening, and nearly transparent. However, inflammatory collections may look extremely like fat necroses, and an examination with the microscope is always necessary. The areas of altered fat occurred, exclusively, close to the peritoneal surfaces. Sometimes they appeared at points some distance from the pancreas, as in the perirenal adipose tissue and in the mesorectum. But in all of the five cats, the same change was also present in the fat immediately about the pancreas; and in two of them it was much more intense there than elsewhere. It seemed to proceed from the pancreas as from a focal point. In one of the cats, nodules and flat areas of fat necrosis were present in large numbers in the fat about the pancreas, in the omentum, in the mesentery and mesorectum, and on the surface of the kidney. In this instance the picture was strikingly like the disseminated fat necrosis seen in man. In three of the five successful cases, an accidental infection of the peritoneum with diplococci was also discovered. The microscopic study of the nodules produced experimentally, gave the same results in the main as are found in fat necroses in man, except that the disorganization of the adipose tissues was not so far advanced. The fat cells, instead of being filled with transparent oil as in normal cells, contained fine linear crystals which produced the opacity already described. Frequently these crystals were arranged in a radial manner around the outer part of the cell, leaving a hollow in the middle. They reminded one of the hollow concretions of stone, lined by crystals, called geodes by geologists. Calcium salts were usually detected in abundance in the nodules, which suggested that the precipitated fatty acids might have combined with calcium to form soaps.

In addition to the work described, which was reported in detail in the *Boston Medical and Surgical Journal* for April 15, 1897, a new series of somewhat different operations has been begun. It may be interesting to note here, however, that in one instance a marked development of fat necrosis in the cat has been secured within twenty-four hours after the operation.

It would be premature to conclude from these experiments alone, that the fat-splitting ferment of the pancreas produces fat necrosis. However, they must be suggestive, considered in connection with the association of disseminated fat necrosis with pancreatitis, the occurrence of single fat necroses in the normal pancreas, and the finding of fat necroses about the pancreas of the hog. It is easy to watch the action of the fresh cat's pancreas upon neutral oil, which is quickly rendered acid. It requires no great stretch of the imagination to conceive of this change happening within the living body, if conditions are produced that bring the ferment in contact with adipose tissue. One may suppose the ferment to reach the tissues by way of the blood or lymph currents, or through the peritoneal cavity. It is noteworthy that the disseminated fat necroses found in man seldom appear except close to the peritoneum. In the cases reported where fat necroses were found in the subcutaneous tissues, even of the extremities, we are obliged to imagine some morbid agent working through the blood stream or by way of the nervous system. In the examples produced in the cat, none were seen in localities that could not have been reached by way of the peritoneal cavity.

In any case it is difficult to account for the peculiar nodular character of the necrotic areas seen in man, and often experimentally made in the cat. In this respect they resemble the focal necroses produced by the toxins of infectious diseases, like diphtheria and certain vegetable poisons, as was pointed out by Dr. Whitney several years ago.

If eventually proven that a pancreatic ferment produces fat necrosis it will be interesting to add another to the list of pathologic processes resulting from the action of the digestive ferments. From this point of view there would be an analogy between fat necrosis and peptic ulcer of the stomach. As peptic ulcer results from the digestion of a spot of mucous membrane whose vitality has been lowered by some pre-existing morbid agency, we may find ourselves unable to account for fat necrosis by the action of the fat-splitting ferment alone.

DISCUSSION.

Dr. DOUGALL, Illinois—I would ask the author whether he has made an examination of the parotid gland in connection with the study of the pancreas in fat necrosis.

Dr. BLAISBROOK, Washington, D. C.—I have been interested in this subject, having read a paper on it, and having examined one hundred cases postmortem with regard to this condition. I have not, however, met with any case of fat necrosis. The only cases in which I have met with disease of the pancreas have all been cases of carcinoma. One or two resembled very closely descriptions of fat necrosis, but under the microscope they were shown conclusively to be cases of carcinoma of the pancreas.

Dr. H. U. WILLIAMS—I have not paid any attention to the parotid gland in this work.

PNEUMONIA IN CHILDHOOD.

BY AUGUSTUS A. ESHNER, M.D.

PHILADELPHIA, PA.

While the symptomatology of pneumonia has been thoroughly worked out, and the disease is viewed as infectious by those most competent to judge, there remains yet some diversity of opinion as to the relations between the varieties designated respectively croupous or lobar and catarrhal or lobular. Pneumonia is no longer considered the pulmonary localization of a constitutional disorder, but rather a true inflammation of the lung, dependent, as experience has shown, upon a variety of causes. While the essential and the final cause is some low form of vegetal life, we have learned that the active bacterium is not always the same and that its mere presence is not sufficient to constitute or initiate the disease-process. On the contrary, certain conditions must have been previously fulfilled in order that the activity of the micro-organism shall be expended in a specific direction.

Pneumonia in adult life differs from the same disease in childhood only by reason of physical and physiologic differences, but a comparative study of the affection as it appears at these two periods of life is not without interest and importance. Discussion of this subject is rendered especially opportune by reason of the publication recently of two valuable contributions dealing with different phases of it, the one by Schlesinger (*Archiv für Kinderheilkunde*, B. XXII, H. 3–6, p. 266), who reports in detail the results of a careful clinical analysis of 173 cases of croupous pneumonia in children observed at the Kaiser und Kaiserin Friedrich Kinderkrankenhaus at Berlin, and the other by Duerck (*Deutsches Archiv für klinische Medicin*, B. LVIII, H. 4, 5, p. 368), who deals at length with the etiology and histology of pneumonia in childhood based upon observations in forty-one cases studied in the Pathologic Institute of the University of Munich.

The 173 cases of Schlesinger occurred among a total of 10,487 under observation during a period of five and a half years, making the morbidity 1.65 per cent. (as compared with from 2 to 4 per cent. in adults). It is well known that croupous pneumonia is far less common in children than broncho-pneumonia. The former may, however, occur in earliest infancy, even the newborn not being exempt, although the disease is relatively uncommon in the first year of life. The period of greatest prevalence falls between the second and the fourth year, the frequency subsequently diminishing until the age of puberty. Boys suffer in larger number than girls (in the proportion of 110 to 63—with a morbidity of 2.2 per cent. to 1.5 per cent), as men are more commonly attacked than women. The disease selects by preference those of robust constitution, the well developed and the well nourished. In contrast with broncho-pneumonia, only a small proportion of the cases have been debilitated by previous disease, although a considerable number have already suffered from attacks of croupous pneumonia and a still larger number from measles. In adults also it has been found that an attack of croupous pneumonia appears to predispose to subsequent attacks.

The period of maximum prevalence for croupous pneumonia is almost invariably given as between March and May and that of minimum prevalence between September and November. The same relation was in a general way found to exist in the series of cases under consideration, although the largest number occurred in May and the next largest in June. No correspondence was observed between the prevalence of croupous pneumonia and that of diseases ordinarily supposed to depend upon the influence of cold, such as bronchitis and broncho-pneumonia, and no special relation was noted with regard to various meteorologic conditions.

Two types of initial fever were observed, the one being unattended with prodromes and the temperature rising to its acme within ten hours; and the other being characterized by prodromal manifestations for a day or two, the temperature then rising in two or three hours. The younger the child the higher in general was the fever and the more likely was it to be remittent or intermittent, in contrast with the continued fever of later years. Involvement of the upper lobes was attended with a higher temperature and more constantly with continued fever than involvement of the lower lobes, and involvement of the right side than that of the left. Gradual reduction of the temperature by lysis proved to be less common in children than it is in adults, occurring in 19 of 151 cases—12.6 per cent., as compared with from 20 to 30 per cent. Defervescence by crisis occurred in 132 cases—87.4 per cent.—oftenest on the sixth day, next in frequency on the seventh day, then on the fifth day. In more than two-thirds of the cases the crisis occurred during the night, continuing on an average from ten to sixteen hours. The reduction in temperature was often considerable—as much as from 3.1 to 3.5 degrees C.—and it was especially pronounced in the youngest children and in association with involvement of the upper lobes. In three-quarters of the cases the temperature fell on the day preceding the crisis to the neighborhood of normal, constituting a procrisis, in contradistinction to a pseudo-crisis. This occurred especially in the middle period of childhood and in association with involvement of the upper lobes and of the right lung. Following the crisis the temperature fell in a considerable proportion of cases below normal, sometimes very considerably, and continued at this level for many days. At times there occurred a secondary rise of temperature of brief duration, apart from any complication.

At the height of the disease, pulse, temperature and respiration pursued parallel curves. With the occurrence of the crisis, however, pulse and temperature declined as a rule notably, the latter in greater degree than the former, while the respiration frequently diminished gradually. Not rarely frequency of pulse and of respiration declined gradually, while uncommonly the respiratory frequency diminished suddenly, together with the temperature and pulse. After the crisis the pulse-respiration ratio was mostly 2.5 or 3 to 1, although exceptionally it reached 1.8 to 1. Excessive frequency of pulse (above 170) or of respiration (above 75), as well as marked infrequency of pulse (below 80), was rare.

The respiration in children suffering from croupous pneumonia assumes a peculiar type, being made up of a short rapid inspiration, a pause in the inspiratory position (absent only during rapid breathing) and a jerky, noisy expiration. At times the action of the heart is arrhythmic, especially during convalescence or following the crisis, though it is occasionally so also at the height of the disease and at this time is of unfavorable omen. Sometimes the heart-sounds are dull and impure and suggestive of the existence of a murmur; rarely the area of cardiac percussion-dulness is increased.

In determining the seat and extent of the morbid process it must be borne in mind that bronchial breathing may be transmitted to the ear from the diseased to the healthy side. In children the infiltration does not remain so strictly limited to the boundaries of the lobes of the lungs as in adults. Not uncommonly it invades adjacent portions of the neighboring lobe or less commonly the lung on the opposite side. More characteristic of pneumonia in childhood, however, is the limitation of the infiltration to a small portion of a single lobe. This localization occurs especially in the axillary region.

Of the 173 cases the right lung was involved alone in 96 (56 per cent.), the left lung in 66 (39 per cent.), and both together in 9 (5 per cent.); as compared with the following distribution in adults: the right lung in from 44 to 57 per cent., the left in from 28 to 43 per cent., both lungs in from 9 to 22 per cent. The left lower lobe was involved alone in 47 cases, the

right lower lobe in 44, the right upper lobe in 37, the left upper lobe in 11. Isolated involvement of the upper lobes (and especially of the right upper lobe), although absolutely less common was *relatively* more common than similar involvement of the lower lobes. When more lobes than one were attacked the invasion was generally consecutive and not simultaneous and it pursued in general an ascending direction. The maximum degree of infiltration was generally reached on the fifth day and persisted for a day or two. Resolution is, as a rule, more rapid in children than in adults, taking place generally at about the time of the crisis. Complications are uncommon and such sequelæ as tuberculosis and pulmonary gangrene are rare.

The course of croupous pneumonia is quite as severe in children as in adults. The severity is most pronounced in those between the first and second years and also in those between the sixth and eighth years. Involvement of the right lung is attended with graver manifestations than involvement of the left lung, while there is little difference as related to involvement of the upper as compared with that of the lower lobes.

When a prodromal stage of two or three days precedes the onset of the disease proper this is ordinarily not marked by any special feature, but when the attack sets in abruptly it may be attended with vomiting (which occurred in 83 of 120 cases—69.1 per cent.), headache (in 26 cases—21.7 per cent.), pain in the side (in 22 cases—18.3 per cent.), delirium or diarrhea (each in 16 cases—13.3 per cent.), abdominal pain (in 13 cases—10.8 per cent.), chilliness (in 12 cases—10 per cent.), rigor (in 10 cases—8.3 per cent., as compared with from 80 to 92 per cent. in adults). Convulsions are relatively uncommon (in 5 cases—2.5 per cent.), occurring only in very young children, especially with involvement of the right lung.

Immediately preceding the crisis the condition of the little patient appears especially grave, even worse than it had been previously, so that the improvement that follows seems all the more pronounced. Nevertheless in not a small proportion of the cases improvement does not immediately succeed the crisis. In especially severe cases symptoms of exhaustion may be present for a day or two after this event.

The course of croupous pneumonia in children is noteworthy for its variability. Some cases pursue an abortive course, the infiltration, though marked, being circumscribed and undergoing rapid resolution. Less commonly the morbid process stops at the stage of congestion. Wandering pneumonia is the most dangerous clinical anomaly in childhood. As in adults, so in children, relapses are rare. In the cases of so-called gastric pneumonia, gastro-intestinal symptoms predominate, while the physical signs are not pronounced and appear late, so that the diagnosis may be attended with great difficulty. One of the most common atypical forms of pneumonia is attended with cerebral symptoms, which may be of convulsive, comatose or delirious character. This is usually associated with infiltration of the right lung and appears not more common in association with involvement of the apex than with that of the base. In many cases albumin is present in the urine and often acute otitis media occurs as a complication. The cerebral manifestations may be attributed to the pyrexia, to individual predisposition, to the intensity of the infection and to disease of the middle ear. When meningitis is present as a complication it usually pursues a latent course.

Examination of the blood discloses a variable increase in the number of leukocytes, which bears no apparent relation to the extent of the exudate and but little to the temperature, although it seems to depend in degree upon the intensity of the infection. The number undergoes diminution in association with the crisis, in the sequence of which it becomes normal. The number of erythrocytes is at this time also diminished. Before the crisis the hemoglobin is generally increased, but subsequently its percentage slowly declines.

Pleurisy was present in 51 of the 173 cases, especially with involvement of the lower lobes, in the largest number merely as an epiphenomenon, but in 16 as a distinct complication. Empyema was encountered in seven cases. In addition to seven fatal cases, heart-failure occurred in twenty cases and collapse in five. Albuminuria is less common in children than in adults, occurring in 28 per cent. of the cases, as compared with from 42 to 68 per cent. in adults. Usually it was slight in degree and corresponded with the severity of the attack. Rarely were tube-casts present. One case was complicated by acute hemorrhagic nephritis; and in two others there was nephritis following measles. Herpes was present in thirty-one cases—18 per cent. All of these recovered and the larger number pursued a mild course. In eighteen cases acute otitis media occurred as a complication, pursuing a relatively benign course. There was moderate loss of weight during the attack, which was, however, made good in a short time. The mortality was 4 per cent., as compared with from 10 to 20 per cent. in adults, and with 65 per cent. in cases of broncho-pneumonia. In the seven fatal cases death was due respectively to meningitis (associated with purulent pericarditis and broncho-pneumonia), intensity of the infection (associated with nephritis and enteritis), pericarditis and empyema (associated with enteritis), pulmonary insufficiency (associated with empyema, purulent pericarditis and nephritis in one case, and with empyema, purulent pericarditis, broncho-pneumonia and nephritis in a second case), cardiac insufficiency (associated with empyema, nephritis and broncho-pneumonia) and cerebral thrombosis (associated with anemia and nephritis).

The diagnosis is not based upon any one single symptom or phenomenon, but upon the general impression made by the sum of all of the symptoms. The therapeutic indication in a self-limited disease like croupous pneumonia is to sustain life till recovery takes place. To this end the temperature should be kept within control and heart-failure prevented. High temperature is best reduced under these circumstances by means of the wet pack, especially when restlessness is marked and delirium active. The water used should have a temperature of from 13 to 15 to 18 degrees C.

The investigations of Duerck showed that the lungs of children suffering from the various forms of pneumonia of both primary and secondary origin contain more or less complex mixtures of microörganisms, among which the diplococcus pneumoniæ preponderates in frequency, both alone and in association with other bacteria. In other respects the constituency of this bacterial mixture bears no relation to the primary disease, except that the diphtheria bacilli were found only in cases of pneumonia complicating or following diphtheria. It was not possible to differentiate histologically lobular from lobar pneumonia. The desig-

nation broncho-pneumonia is considered permissible only when extension of the disease from the bronchial terminations to the peribronchial tissues can be demonstrated. It was found that the lungs of persons dead of other diseases and not suffering from pneumonia contained bacterial mixtures similar to those found in cases of pneumonia, and in these also the diplococcus pneumoniæ preponderated. Further, bacteria, some pathogenic, were found in the lungs of domestic animals, such as pigs, oxen, horses, calves, not suffering from pneumonia.

From these observations it seems fair to infer that the normal lungs of healthy individuals always contain pathogenic bacteria, whose mere presence is not sufficient to set up disease. In addition there must be some traumatic or other disturbing influence. It was found experimentally that simple injection into the trachea of animals of the bacteria found in pneumonic lungs is not alone sufficient to induce pneumonia. When, however, irritating substances were injected, either previously or simultaneously or subsequently, pneumonia resulted. Injection of the latter alone also proved capable of causing pneumonia, and exposure to cold likewise was followed by the development of pneumonia of lobar, fibrinous and mycotic type. These two forms of pneumonia owe their origin to injury of the pulmonary structure, in consequence of which the microörganisms already present undergo multiplication and acquire pathogenic properties. The harmful influence of cold depends in all probability upon the induction of an acute intense hyperemia of the lungs. The presence of pathogenic bacteria in the normal lungs of healthy persons helps to make clear the occurrence of the so-called mixed or secondary infection of tuberculosis.

ON THE TREATMENT OF TYPHOID FEVER.

BY E. VIKO, M.A., M.D.
PARK CITY, UTAH.

In 1870 Selmi discovered the ptomains, and later Bouchard pointed out the rôle the ptomains play in infectious diseases; knowing the lesions of typhoid fever and its cause many physicians then came to the conclusion that intestinal antiseptics should be employed in this disease. Silver nitrate was employed in 1860 by Joseph Bell of Glasgow, and later by William Pepper of Philadelphia, who treated 100 consecutive cases without a death. As early as 1883, Da Costa employed thymol with good success; ever since thymol has gained in favor. Naphthalin was praised by Rosbach as an abortive in typhoid fever; Kraemer in 1886, Wilcox in 1887, Sehwald in 1889 and Wolff of Philadelphia in 1891 confirmed Rosbach's observations. Mules (*British Medical Journal*, Feb. 27, 1892) reported that many cases of typhoid could be aborted with naphthol. Salol, calomel, beta-naphthol, turpentine, and mineral acids have received their share of praise.

According to my experience, under proper diet and by the use of intestinal antiseptics, the death rate in typhoid fever ought to be almost *nil*. I have treated several thousand cases and have tried thymol, salol, beta-naphthol, calomel, copper arsenite, guaiacol and mineral acids, either combined or separate. My preference is for thymol, salol, beta-naphthol and calomel. Under their administration the attack can be aborted or shortened, or it will run a mild course. Relapses are apt to occur if the medicine is stopped too soon. I order the medicine used for at least two weeks after the fever has abated. The patient is ordered to drink all the water desired. The water is boiled, cooled and aërated; ice is allowed; milk, if it agrees, is ordered; beef tea and soft-boiled eggs, mild stimulation during convalescence. If the stomach is irritable, rectal feeding of milk and beef tea is resorted to when necessary. My prescriptions generally read:

(For an adult.)

℞ Salol	℈ ij	2 60
Thymol	℈ ij	2 60
Tablets cupri arsenitis (ää gr. .01) No. xx		
Papoid	℈ ij	2 60
Guaiacol carbonatis	ʒ ss	2 00
Pulv. saponis	gr. v	33
M. Ft. caps. No. xx		

Sig.—One every four hours with milk.

(For children.)

℞ Beta-naphthol, dissolved in heated oil	gr. xxiv	1 56
Ol. amygdal. dulcis, dis. in heated oil	ʒ ss	16 00
Ol. cassiæ	m. j	06
Pulv. acaciæ	q.s.	
Glycerini	ʒ ss	16 00
Aq., q.s ad	ʒ iij	96 00
M. Ft. emulsio		

Sig.—One teaspoonful every four hours with milk for 3-year-old child.

The bowels are moved once or twice a day with calomel and soda. At this place, I desire to express my opinion as regards acetanilid. Most authorities condemn it; in large doses it will certainly do harm In small doses (4 grs. every three or four hours) I have found it very beneficial; it keeps the temperature inside safe limits and lessens tissue oxidation. It produces sweat, which is certainly desirable. The pulse becomes slower and stronger (action analogous to digitalis). My prescription reads:

℞ Salol, acetanilid . . . . . ää ʒ j
M. Ft. pulv. No. xv.
Sig.—One every three or four hours when fever goes above 102 degrees F.

Under the above detailed treatment sordes on the tongue never appear, and seldom delirium; hemorrhage from the bowels is rare; death rate is almost *nil*.

A word as to the Woodbridge method. On reading his article in the JOURNAL for July 10, 1897, one is left with the impression that Woodbridge has made a new discovery. His treatment is not new (see short historic sketch at the beginning of this article). The only new and novel thing about it is a variety of tablets and capsules. As to novelty they are certainly admirable; as to practicability they are a nuisance. The drugs used are all good and I do not doubt but that he will have good success with them, but the doses are too small and the intervals between doses are too short, thereby unnecessarily disturbing the patient too often; the purging is also excessive. Larger doses, longer intervals between doses and less purging will produce just as good results if not better. The sentence: "The declaration that typhoid is a curable malady has been for years and is yet nearly always greeted with such 'acrimonious and vituperative dissent,'" etc., is unwarranted, as the writings on intestinal antisepsis are quite extensive and date back to 1870 (see authorities mentioned and also Hare's "System of Practical Therapeutics," 1892).

Permit me to report a curious instance with reference to the cause of an outbreak of typhoid last fall in four families who live outside of town near the mines at a place called the Alliance tunnel. They receive their water supply from a small creek. The water is conducted first through two barrels as a reservoir and thence

to their houses. Eleven became sick with typhoid; the youngest was 11 months old, the oldest about 35 years; in some the temperature was normal at from eleven to fifteen days, in others about twenty-one days; in one in thirty-six days and in another about forty days, counting the relapses. All got well. The average duration of the disease was fourteen or fifteen days. Undoubtedly several more cases would have occurred in those families had they not been instructed to boil their drinking water. Later the barrels used as reservoirs were cleaned out and three more or less decomposed squirrels were found in the barrels.

Some two or three years ago this town used to be a regular hotbed for typhoid fever. The cause was in the water supply. The fever would be most severe in December and January; at that time the usual water supply was insufficient and water from a stream polluted with human excrement was turned into the city reservoirs.

THE USE AND THE ABUSE OF THE BICYCLE.

Read before the Central Wisconsin Medical Society, at Evansville, Wis., June 29, 1897.

BY JAMES MILLS, M.S., M.D.

JANESVILLE, WIS.

The world is on wheels; doctors and ministers, lawyers and teachers, husbands and wives, kings and queens, old and young, rich and poor, are all equal in cycling; and all must pedal, sweat and breathe dust alike. In this they share the same joys and sorrows. Cars and steamboats are wholesome affairs, so far as equalizing our outward conditions is concerned; but your true leveler in locomotion is the bicycle.

In this "age of inventions," what the telegraph and the telephone do for thought and voice, the bicycle does for the body. It is a machine with the power of impulsion induced by the muscular motion of the rider's limbs; it is a horse and buggy combined; costs less than either and fattens on air. It enables the doctor to outride microbes, and catch ozone on the wing. It puts him in prime condition for visiting his patients, and is an amazing economizer of his time and energy. It suggests to him the importance of caution, courage, courtesy and self-reliance; and particularly of "looking before leaping." Like the moth that circles about the flame, he will find the danger of "scorching"; and possibly like it, take warning from the sad mishaps of others who often outride him.

It is for the general public interest, that legitimate and orderly cycling should be encouraged. The use of the bicycle for traveling, especially in the country, has in it the germ of the solution of the improvement of public highways. When wheelmen have become sufficiently banded together to compel the maintenance of well-paved streets and good roads and the safe use thereof by them, there will be a heavy falling off in the tribute paid by the people to elevated-track magnates and traction barons, who now control our street and railway conveyances, and tax the people for the proud privilege of getting to and from their daily labors.

Beyond all these, there is the certainty of a higher physical standard for the race in the universal employment of a vehicle which insures to its users fresh air and healthful bodily exercise. I believe that the bicycle, properly used, is of very great value to a large number of people who would not otherwise indulge in sufficient outdoor activity.

The majority of accidents to cyclers in the cities are the results of inexperience in riding and the carelessness of the drivers of horses. In Germany and some other European countries, this fact is recognized; and before a novice is allowed to go out upon the public highways, he or she is required to give an exhibition of proficiency before duly appointed examiners. We venture to assert that this would obviate many of the present dangers which are universally admitted to need attention, and would thereby appreciably reduce the number of street accidents.

The subject of bicycling for women is beginning to attract the notice of medical writers. Dr. Robert L. Dickinson of Brooklyn, N. Y., is among the foremost who have given the subject attention. Some French, English, German and American gynecologists have given their opinions upon the subject, and the greater number of them agree that, as a rule, where this exercise is not carried to excess, it is a beneficial one.

In it we seem to have found, at last, a form of an open air muscular work, which induces women to spend many hours away from close rooms and indoor tasks. It exercises and strengthens a large number of muscles of the body, far more than is generally supposed. Ask the beginner or the expert, how much bodily balance is required. Ask the woman who sits upright, holding tightly to the handle bars as she works up a grade, how much arm-and-shoulder pull there is in it.

Since bicycling is one of the few popular physical exercises that attract women, it will, under properly prescribed conditions undoubtedly show itself capable of large results as an agent in curing pelvic disorders. There is no problem that troubles the physician more than the prescription for proper physical exercise by women in view of her disabilities and the disadvantages under which she has suffered in attempts to obtain pleasurable and beneficial muscular action. It seems hardly too much to say that the promises from the bicycle are far-reaching. Through it and the habits it will engender, we look for better and freer dress; for rounder limbs, fuller lung cavities, steadier nerves, and better developed muscles.

There are four demands before which the costume of the wheelwoman must pass in review: health, fitness, fashion and artistic beauty.

The third of these is ever at odds with the others. As for art in personal adornment, it can not be said to exist among people who tolerate a combination of sweaters, bloomers and leggings, or the deformed wheelwoman of alleged fashion journals. Yet the principle at the foundation of the dress question seems exceedingly simple. For play of the muscles, freedom is the first requisite, whether in cycling or scrubbing; and we must therefore instruct our patients to make certain modifications of their dress as necessary.

One has but to glance at ten riders of the hampered sex, to see nine who, ignorant of some of the rules of good riding, misapply force, waste effort, and run a certain risk of harm to themselves. The trouble is due chiefly to the lack of training, since the pupil in bicycling is turned adrift on the road as soon as she can balance a wheel or can mount and dismount one. Instruction should be insisted upon to obviate bad habits of riding; and unmerited criticism will thus be avoided.

It would be superfluous before an audience of physicians to do more than to name the ordinary precautions necessary for women who take up wheeling.

We lay stress on carefully increasing the length of the ride, and on strict attention to the difficulties thus experienced; on heeding the warning given by palpitation of the heart and by labored breathing; on signs of strain of the right heart, which is robust only in laborers and athletes; on frequent rests; on giving heed to chilling and over fatigue; on light food during exercise; on relaxation of the muscles after riding; and on entire abstinence from such riding during the menstrual period.

I have the report of the wife of a physician, who, after riding her wheel for half an hour against a hard wind, had sudden cardiac dilatation, which gave rise to very serious symptoms, and which it required eight months to reduce.

No physical exercise has proved to be more beneficial in many insane hospitals than the riding of the wheel. It is attractive, novel and interesting to the patients, and brings excellent curative results.

Bicycle riding has certain advantages over the present style of horseback riding. The fashionable contorted seat on a saddle horse does not develop the body symmetrically, and the awkwardness, due to the fact that the transverse diameter of the pelvis and the transverse diameter of the upper trunk do not correspond, means strain, to say nothing of the useless effort that a trotting gait entails.

When women get into the habit of riding on horseback, part of the time with the stirrup on the right side, and part of the time with the stirrup on the left, one objection to the spinal rotation and the unsymmetrical development will be overcome; and it is to be presumed that eventually all women will ride astride, as their great-grandmothers did before the days of Elizabeth. Expense precludes this form of exercise for most women. Cheapness, safety, accessibility, and the small amount of preparation required, are all on the side of the wheel, and hold good even to a greater degree for women than for men.

The question is often asked, how is it that we advise women to ride a wheel, while a strong protest has been entered against her running the sewing machine, on account of the harm it may do to her pelvic organs. It seems to me that the conditions under which the two forms of leg exercise are taken, are radically different. A woman at the sewing machine must focus her eyes accurately on the point at which the needle is at work, and must drive the material along in even lines under the rapidly moving needle and within the margin of one-sixteenth of an inch. Such a position to a corseted woman brings a strong pressure on the the pelvic contents and prevents free circulation.

A word of warning is needed as to the undue pressure that the bicycle seat is liable to make upon the parts of the body in contact with it.

The seat of the bicycle for men seems to have been modeled after the saddle that was found suitable in riding horseback.

Women have generally found great difficulty in having the seat so adjusted as to be comfortable to them.

To relieve them in this respect, several alterations become necessary. In the first place, a woman's pelvis is broader than a man's; and the tuberosities of the ischia are farther apart in woman than in man; consequently, the width of the rear portion of the seat needs to be greater. Secondly, the anterior projection of the seat must be tilted downward. This, however, requires the most delicate adjustment; for if the seat is tilted too far, its slope will cause the rider to slide forward, so as to rest almost entirely upon its anterior projection, and so defeat the object of the tilting.

There are two possible objections to bicycling by women. The one, over exertion, should be and is easily controlled; the other may be entirely eliminated by the use of the proper seat. Bicycle riding can do no possible harm to a healthy woman, any more than it can to a man, unless it is abused. And for neurasthenics it is an excellent remedy, probably the most valuable we have.

The principal points connected with the proper construction of the machine itself are those relative to a proper fitting seat and an arrangement of its parts enabling the rider to assume a reasonably erect position, so that the weight of the body is in part upon the pelvic bone, and the rest of it is borne by the feet upon the pedals and the hands upon the bars.

Physicians ought to have personal knowledge of this exercise. It is our duty to so advise wheel-women that they may be carefully trained by competent instructors as to the right methods of pedaling, the correct position of the body, and the height of the seat.

It is plain that the wheel is destined to make a place for itself in the world, not only as a luxury and source of pleasure, but as a positive necessity for health and physical development to hundreds of thousands.

FRACTURES OF THE SKULL AND INJURIES TO THE BRAIN.

Read before the Milwaukee Medical Society, May 25, 1897.

BY F. SHIMONEK, M.D.
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MILWAUKEE, WIS.

Case 1.—B. F., German, age 35 years,, book agent; was brought into the Emergency May 1, 1897, about midnight; unconscious, right motor hemiplegia, respiration labored and irregular and of Cheyne-Stokes character, hemorrhage from right ear. Pulse 70, full and stong, indicating cerebral compression; temperature, 97 degrees; by next morning it had arisen to 100.2 degrees and pulse to 98; respirations, 26.

History: About 10 P.M., while intoxicated, fell down stairs and was not found until about midnight. I saw him the following morning in the above-stated condition.

Examination: The scalp was very greatly swollen, so much so that it was impossible to make out the condition of the skull underlying this tumefaction. There were no marks of injury upon the scalp. An oblong edema extended from a little distance behind the bregma on the right side of the head downward and backward to the apex of the mastoid process. May 2, pulse, 84; temperature, 99.2; respirations, 20; temperature rose to 101 degrees. Ice was applied immediately and this application kept up until May 3, when examination revealed a little motion in the right arm and leg and not quite such profound unconsciousness. The edema having somewhat subsided we were able to feel a short ridge, which we decided to be a fracture.

It is a known fact that a simple exudate in the scalp, or rather in the pericranium, is frequently mistaken for a fracture; but it is quite easy to differentiate an exudate from a ridge of a fractured bone by simply taking into consideration the fact that an exudate being a displaceable material, can by pressure applied firmly and steadily for a few seconds be indented and made to yield before the finger, while a

ridge due to a fracture will not yield to pressure and is more likely to make a dent in the finger. It will be noticed that the injury on the head, the bleeding from the right ear and the paralysis were on the right side; according to cerebral localization it follows, therefore, that the lesion causing the paralysis was an injury, through *contré coup*, of the opposite motor center, and that part of it which controls the leg and arm.

Operation: Assisted by Drs. Chandler and Hanson, May 3, 12:45 P.M., a large U-shaped incision was made over the right parietal bone, just posterior and inferior to the eminence, surrounding the supposed fracture. A piece of loose bone, about an inch square, directed vertically inward, was found. It was necessary to remove a button of bone before this could be removed. The dura mater was uninjured. After extraction of the bone the compressed brain very slowly filled the space, but was perfectly pulseless. From this piece another fissure extended in the direction of the sagittal suture, thence downward and outward, describing almost a perfect circle, and having a diameter of two and one-half inches. This area was also loose so far as bony connections were concerned, but was still attached to the pericranium; one edge of it was so firmly fixed beneath the skull that all our efforts to bring it into contact with the skull and retain it were without avail, so its removal was deemed the lesser evil. Still another fissure, running downward in the direction of the petrous portion was found, and this explained the hemorrhage from the ear.

The night following the operation some signs of improvement appeared, such as continuous talking and diminishing paralysis. Temperature, 99.2 to 101, axilla; pulse, 92 to 99.

May 5, 9:30 A.M. The wound was dressed and union found perfect, with no cerebral pulsation. The patient asked for water, complaining of headache. Temperature, 98.6 to 100, axilla; pulse, 78 to 88; respirations, 21. He was perfectly conscious; talked rationally about his affairs and relatives; moved arm and leg quite easily.

The unconsciousness was due to the depressed fragment of bone; the motor paralysis to an injury of the opposite motor center, the pulselessness to an hemorrhagic exudate, probably into the lateral ventricles. The improvement after the operation simply followed the relief of pressure.

May 8. Temperature, 99.4 to 98.4; pulse, 80 to 78; 3:20 P.M., he became again unconscious and could not be aroused.

May 9, 6:30, regained consciousness, complained of headache and again became profoundly comatose with complete motor paralysis of right side.

May 10. Temperature, 98 to 100, axilla; pulse, 68 to 82, full; respirations, 22; completely unconscious all day.

May 11. Temperature, 98.4 degrees; pulse, 76; still profound coma. At 5:45 it was decided to open the skull upon the opposite side, *i. e.*, over the middle meningeal artery, because it was suspected that a fresh hemorrhage was causing the unconsciousness and paralysis. With the assistance of Drs. Chandler and Hanson I trephined on the left side. A small clot with quite a quantity of venous blood escaped. I believe that an accidental injury to a vein caused the venous hemorrhage; the brain upon that side, also, was perfectly pulseless, demonstrating the fact that there was intracerebral pressure. The patient was so profoundly comatose that the operation was done without an anesthetic and he did not manifest any sign of sensation. Respiration was decidedly Cheyne-Stokes.

May 12. Temperature, 98 to 100; pulse, 78 to 124; respiration stertorous; complete unconsciousness.

May 13. Temperature, 99.4 to 98.4 degrees; pulse, 102 to 108. The patient was still unconscious and right motor paralysis still existed. The wound was dressed and found aseptic.

May 13, 10:20 A.M. He became conscious and asked for lemonade The paralysis was somewhat improved.

May 14. Temperature, 98.8 degrees; pulse 101 to 77; respiration, normal. Patient was perfectly conscious and paralysis vanishing and absolute asepsis continued. The patient returned home May 22, weak but perfectly well and after twenty days of pulselessness his brain is again normally pulsating.

Case 2.—S. D., injured by a falling scantling which struck him on the temporal region. He died on the way to the hospital. There were no external marks, but brain and blood were exuding from the meatus auditorius externus in considerable quantities.

Case 3.—M. K., injured by falling from a building. He struck on the right temple and when picked up was completely unconscious and had a left spastic paralysis, with an occasional tremor of the paralyzed side. It is not known whether he was immediately comatose as he was not missed until several hours had elapsed. Two buttons of bone were removed from over the middle meningeal artery of the right side. No hemorrhage was found but a large quantity of very clear serum escaped. No benefit followed the trephining and the patient died the next morning. I believe that the lesion in this case was a cerebral laceration extending into the lateral ventricles and permitting the escape of the cerebro-spinal fluid through the Sylvian fissure and out through the trephining opening.

ON A CASE OF THE PARTIAL REMOVAL OF THE SPLEEN.

BY HORACE M. DEEBLE, M.D.

Late Acting Assistant Surgeon United States Army; Member American Medical Association; Member and Treasurer of the Medical Association of the District of Columbia; Member of the Medical Society of the District of Columbia, etc.

WASHINGTON, D. C.

One evening in May, 1889, about 7 o'clock, and while stationed at Fort Yates, North Dakota, I was summoned to the Indian hospital, three miles south of the post, to examine a 12-year-old Indian boy that had met with an accident. A short time before, the patient had been leading a pony to which was attached the usual lariat and picket-pin. From some cause or another the animal became frightened, and in its alarm violently jerked the lariat rope, which had the effect of sending the iron pin at its free end flying through the air and this struck the boy in the left side between the fifth and sixth ribs, inflicting an incised wound some fifteen centimeters in length. Through this opening protruded a tumor, which was dark in color, and measured in diameter about seven centimeters. Upon examining this it was seen that it could be nothing more nor less than the boy's spleen. The organ was, moreover, in the most unsatisfactory condition, owing to the fact that the parents of the child had made numerous and violents attempts to squeeze the mass back into their son's body through the lips of the wound. This undue handling had gotten the organ into the most filthy condition imaginable and, of course, in the very worst state for the interference of the surgeon. To make matters still more serious, I had come to the hospital armed only

with my pocket-case and no antiseptics. To replace this bruised and lacerated spleen within the abdomen of the patient would, I was certain, prove to be a fatal procedure, as profound suppuration together with infection of neighboring structures would quickly follow beyond all peradventure of a doubt.

Under these circumstances there was but one thing left for me to do, which was to remove the organ. This was promptly done, having first encircled the mass at its base with a ligature. Then cleansing the stump as thoroughly as possible with hot water, I returned the former into the abdominal cavity and closed the external wound. There was a lady physician in charge of this hospital and to her I turned over the case, hearing nothing further from it until about 6 P.M. on the third day after the operation, when I was sent for in great haste. Carrying with me the proper antiseptics and dressings I was soon at the patient's bedside, where the preliminary examination revealed the fact that the temperature had arisen to 104.4 degrees; the patient was, moreover, extremely restless and the margins of the wound were greatly swollen and bulged outward. Upon removing the stitches there immediately escaped 60 c.c. of very offensive pus, and in this floated the ligature, which had come away. Washing out the cavity with a solution of hydrogen peroxid (1 part to 4 of water) until all foaming had ceased, I next inserted a rubber drainage tube and dressed the wound with bichlorid of mercury gauze, placing the whole in as favorable a condition as possible. Good effects immediately followed, for the child's temperature at the conclusion of the toilet of the wound fell from 104.4 to 100.4 F. At my first visit I had instructed the attendants to allow their patient only liquid food, but these instructions had not been carried out; for the parents had succeeded in smuggling in a quantity of dried peaches, which he had consumed; fortunately, however, without any deleterious effects. From this time on the patient made an uninterrupted recovery, and after the second dressing no pus accumulated in the wound.

Prior to his injury this young Indian was but a light eater, while in temperament he was mild and docile. A marked change in both these respects took place, however, after I had relieved him of at least three-fourths of his spleen. Almost immediately his appetite became ravenous and the amount of food it took to appease it was quite incredible. *Pari passu*, with the development of this enormous appetite the boy's temperament underwent a complete change, and instead of being gentle and good-natured, he gradually, though rapidly, became exceedingly irritable and querulous. Two years subsequently, when the opportunity was again afforded to examine this patient, I found that no change had taken place either in his appetite or nature. After his recovery, I regret to say that I made no examination of the blood of this boy, although I was enabled to observe that he was lacking neither in the matter of growth nor development. He was likewise well nourished.

There have been very few traumatic injuries of the spleen reported, and one authority consulted by me, makes the statement, that out of twenty-nine cases of gunshot wound of this organ, there were but two recoveries. The present case confirms much that has been written in reference to the effect upon the appetite, following extirpation of the spleen, while upon the other hand little has been said in literature touching the effect the removal of this organ has upon the disposition of the patient.

In Flint's "Text-book of Human Physiology," he sums up with more or less thoroughness the effect which eradication has upon most dogs and other animals below man. This eminent authority makes full reference to the changes which take place in the appetite, such as marked increase in the voracity as well as depravity, the subject sometimes not being averse to the eating of feces and flesh of its own kind. He also quite fully refers to the changes in the disposition of the animal.

Nevertheless, there is a great deal yet to be known in regard to the physiology of this peculiar ductless gland, and upon this occasion I can only say that I feel a deep sense of regret that I did not bring this boy under a closer examination the entire time it was within my power to do so. The opportunity may at least have afforded confirmation of doubtful points which now stand in need of additional material to clear them up.

602 M Street N.W.

AN UNUSUAL CASE OF VARICOSE VEINS.

BY B. J. WETHERBY, M.D.

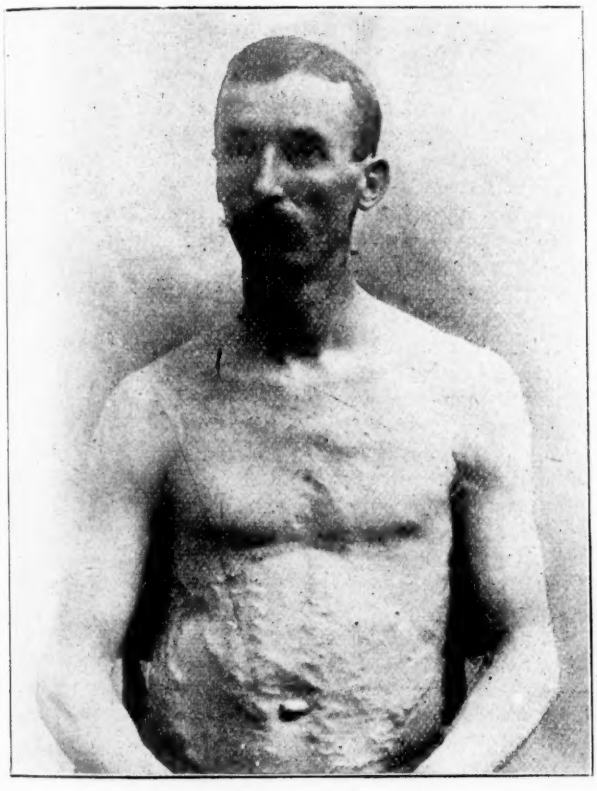
WILKESBARRE, PA.

I wish to report what has been to me an unusual and interesting case of varicose veins. The patient, Carl Mitchell of Arlington, Kansas, has been under my observation more or less constantly, on account of an intimate friendship, and near residence, during the past ten years, until I removed from the State, six months ago. He is now about twenty-six years of age, married, and by occupation a farmer. Until three years ago he was in perfect health, with the exception of a very obstinate acne vulgaris of the face, shoulders and breast, which still persists, although in a much modified form. His parents are both living and in good health. He has two sisters, living and healthy. He has never had gonorrhea or syphilis. Three years ago he was rather suddenly seized with pain in Scarpa's triangle, over the femoral vein of the left side, which was followed by the development of a sausage-shaped tumor about six inches long, in the same region. There was no history of traumatism, exposure or undue fatigue. The pain was aggravated when he attempted to walk or assumed the upright position. There was fever, anorexia, furred tongue, constipation and all the symptoms of acute inflammation. The leg on the affected side became edematous, and albumin occurred in the urine. A diagnosis of phlebitis of the femoral vein was made, and the patient confined to bed. The abdomen became very tender and the constipation more obstinate. In about ten days a tumor developed over the femoral vein in the triangle on the right side, followed by edema of the right foot and leg. The acute symptoms lasted about five weeks. Convalescence was very slow, extending over a period of several months.

Following the subsidence of the acute symptoms the superficial epigastric and superficial circumflex iliac veins on both sides began to enlarge, which they continued to do until all the superficial veins of the abdomen were of sizes varying from that of the little finger to that of a goose quill. They can be traced with the eye to the level of the fourth rib. I succeeded in getting a rather poor photograph, which is here presented.

My theory was that a phlebitis began in the left

femoral vein, traveled up the external and common iliac of the left side to the bifurcation of the inferior vena cava, then traveled down the right common and external iliac veins to the right femoral. The inflammation almost or entirely obliterated the veins involved causing almost if not the entire return circulation from the lower limbs to be carried on by the superficial epigastrics and superficial circumflex iliacs through their anastomoses with the mammary and intercostals. I presented the case before the Kansas City Academy of Medicine and nearly all the members agreed with this theory. Dr. Cordier and Dr. Binnie of Kansas City examined the case in private and endorsed my views. No one with whom I have talked regarding the case has ever seen a similar one, hence my desire to report it.



At present he is feeling fairly well and doing work on his farm. Both legs are somewhat edematous, and at times his abdomen contains considerable fluid.

An occasional hydragogue cathartic and a constant use of laxatives keeps the edema from giving much trouble. He has an ulcer on each leg which is alternately healing and discharging. There are no varicose veins in the legs. I have advised elastic stockings extending to the groins, to be worn on both legs, and a change to a lighter occupation.

SURGERY ONE HUNDRED YEARS AGO.

AN HISTORICAL STUDY

BY DR. GEORGE FISCHER.

DEDICATED TO THE GERMAN SURGICAL ASSOCIATION.

TRANSLATED FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION BY CARL H. VON KLEIN, A.M., M.D.

(*Continued from page 237.*)

X.—ENGLISH SURGERY. JOHN HUNTER.

Bacon von Verulam; Maxims of English Surgery; The English: Cheselden, Sharp, Bromfield, White, Gooch, Alanson, Warner, Wilmer, Hill; Pott; 4 Scotch families: Alex. Munro with his sons Donald and Alexander; Benjamin, John and Charles Bell; Allan and John Burns; William and John Hunter. Surgeons in the remaining foreign countries.

A nation which was in possession of the commerce of the world, and ruled the sea, hardened by an inhospitable climate and given to the dangers of the open sea; a people with strong practical sense, mightily stimulated to the study of nature by continuous traveling, rich in material wealth, having built in their own home a number of most excellent hospitals, whose physicians had practiced in the most remote regions of the earth, and had there learned the diversity of prevailing diseases—In what spirit must this people pursue its sciences? Those very qualities make it probable, that the English, instead of clinging to speculations and hypotheses in their researches, would much rather hold to simple observation and experience.

In its lord chancellor and keeper of the great seal, *Francis Bacon*, Lord Verulam (born 1560), England produced a great genius whose philosophy, through the application of the inductive method, brought about a complete revolution in all experimental sciences, and especially in medicine. It was the method of arriving at general principles from isolated experiences, in contrast to the deductive method of descending from general principles to particular cases. One should pass cautiously and slowly from the particular observations, accurately weighing the circumstances and modifications, to the general propositions; for only in this way and with much difficulty will progress be made. Experience alone will be of little use, if one does not know how to deduce causes from it, and it is just as harmful to portray nature according to preconceived opinions and favorite theories. Bacon demanded an accurate history of a case which must be neither so verbose as to include the most commonplace trifles, nor so meager as to relate only the miraculous. Good observers might find in the most ordinary things much that was noteworthy. Departures from a normal structure of parts and also comparative anatomy, had been too much neglected, while advancement in medicine had been especially retarded by a too great veneration for antiquity. It was foolish to perpetually quote the authorities; man must study nature, for as a rule there was not much wisdom in books, since they continually contradicted each other. These empirical views of Bacon which opposed all useless substitutes, were carried still farther by Locke and Sydenham. The latter laid clear before the eyes of his contemporaries, the great mischief of the mania for hypotheses, and led them back to the observation of nature. After Bacon's idea, the architect Wren founded in 1657 the Royal Society, whose object was the study of all nature. In the beginning of the eighteenth century, Locke (1704) and Newton (1724) died and England lacked for half a century, until John Hunter came, great thinkers who advanced comprehensive views of natural phenomena. But the British still valued sensual perception as the only source of knowledge. Proud of their healthy human understanding and practical insight, the British nation was an enemy to all general hypotheses, declaring openly that their business was with facts, and despising every theory from which a direct use could not be expected. The discovery of a new salt or the invention of a new machine, meant to them far more than the deepest speculation. The

study of nature was everywhere insisted on, even though it sometimes went astray. This explains the voluminousness with which every natural product was described and catalogued. For instance, the frog hopping about in every conceivable aspect, occupied a whole volume; and also the immoderate partiality for the miraculous filled their medical literature with curiosities. Indeed, the practitioners complained that in all the investigations and classifications of worms, they forgot to study the symptoms of worms in the human body and the means of eradicating them, and never thought of the great profit which the science won from the enthusiastic study of nature. For the first time Newton, discarding all hypotheses, taught students to base conclusions on observation, and with mathematical exactness, to build one proposition upon another, assuming nothing without proof. The English nation assented to this, for they were more empirical than any other nation in Europe.

A reaction in English surgery was not lacking; here also empiricism carried the banner. "A grain of experience to a practical surgeon is worth a pound of reasoning;" with this maxim Kirkland criticised the views of his countrymen. (In Germany A. G. Richter and Schmucker adopted these winged words, except that the latter changed the grain to a drachm.) The love of the natural and unartificial, a national characteristic of the English, gave to surgery a different direction to what it took in France. The animated and fervid power of the French, which, with real zeal multiplied useless instruments and increased superfluous methods of operation, was observed by the Englishman quietly and thoughtfully, while he followed nature and sought to make his surgery as simple as possible. They operated with the greatest complacency. They took pride in performing almost all operations with the surgical knife alone, and simplified many instruments; indeed, as simplicity in instruments is almost always the measure of this perfection, and nothing shows better the poverty of our art than the multiplicity of instruments and bandages. They cast a great many of the latter into the lumber-room and looked upon bandaging as a very subordinate branch of surgery. The surgeons industriously cultivated anatomy, in spite of the fact that this study was made difficult by prejudice and other hindrances, and gave to their surgery a new impetus such as the French had given to theirs. Accordingly, their best surgeons were at the same time the best anatomists (Cheselden, the Hunters, Monro and Bell). They did not stand second to the grand nation in operative skill, and found rich opportunity for training in the wars and in the many hospitals. It was not long before English surgery excited public attention, in spite of the brilliancy of their French rivals. It was seen that in the English hospitals the mortality after operations was much less than in the French, and it was realized that the better hospital equipment contributed to this result, as did also the great simplicity on the part of the surgeons, who also had more thorough medical knowledge than their neighbors and a greater appreciation of after-treatment and diet. The English followed a strictly conservative policy. They tested the new, but with discretion. Indeed, it was difficult for an innovation to find acceptance, but when proven successful it was introduced and strenuously maintained. They had a high reverence for what had been once tested, and for the traditional; their retention of tried principles and faithfulness in their application, were the chief qualities of English surgeons. Their great harmony in respect to the most important questions of practice, soon gave to their surgery a definite national aspect. It was a great merit in certain eminent men as Percival Pott and Benjamin Bell, that they although themselves highly esteemed as operators of the first rank, by no means placed the chief value of surgery in operating, and sought to check the undue zeal of the young men of that day for operating and to impress upon them the value of pathologic surgery. For with a little anatomic knowledge, coolness and a firm hand, any one could perform the most difficult operations with tolerable success, but for the proper diagnosis and treatment of a wound, knowledge was demanded which but few surgeons possessed. Of no less importance was the growing union of the study of medicine and surgery, for which Kirkland, among others, zealously contended (1783).

Although, not until the year 1800, did the state separate the college of surgeons from the guild of the barbers, yet surgery in Great Britain was considered one of the free professions, and, chiefly through John Hunter, had as a science been elevated to the level of medicine. In contrast to other nations of Europe, where it was despised, surgery was valued and honored. Frequently youths of the best families devoted themselves to its study; men of high rank attended surgical and anatomic lectures and had their allotted place in the ampitheaters. In general, the whole nation showed more sense and confidence in surgery than was shown elsewhere. This has continued to our own day. Even yet the success of herniotomy is greater in England than in other countries, because the sufferer notifies the physician earlier, and the operation is therefore earlier undertaken, a circumstance which also favors the prognosis of stone in the bladder, as the patients seek medical aid earlier than is the case in our own country. The English showed a high degree of enthusiasm for their profession, and in spite of the large number of skilled surgeons, four to six of whom frequently served in the same hospital in London, they were very friendly with each other and exchanged their opinions in mutual consultations, free from jealousy and prejudice. A great impetus was also given by the various societies. London had a college of surgeons, of physicians, the Royal Society, the Society of Physicians and several private societies; Edinburgh and Dublin likewise had their colleges of surgeons. These published their journals. The "Edinburgh Medical Essays" (1732) and the "Medical Observations and Enquiries," were followed by the "Medical Transactions" published by the College of Physicians in London, (1768), and the "Memoirs of the Medical Society of London" (1787), which was published by physicians, surgeons and apothecaries. How high a standard was maintained by the latter society, which consisted of thirty members, is shown by the fact that no one who possessed a secret remedy was admitted to its membership. In the year 1805, the Medico-Surgical Society was founded; its published proceedings ("Med. Chir. Transactions") have become of the utmost importance. The surgeons and apothecaries were really the family physicians, while the physicians were only called in difficult cases. In 1797 it was suggested that all medical persons be given the common name of doctor of health, analogous to the French officiers de santé, but in vain. The

surgeons remained in the guilds until very recently; a sharp distinction was made between surgeons, physicians and general practitioners. The latter were the so-called apothecaries who practiced medicine, surgery and obstetrics, and prepared in their own houses the medicines for their patients.

The excellent hospitals laid the foundation, in the beginning of the 18th century, for the great medical and surgical schools. *Cheselden*, of St. Thomas Hospital in London, body-surgeon to the queen of England, introduced this period. He wrote little but accomplished all the more. We have him to thank for ingenious descriptions of the eye, which he first undertook in 1718, but described very briefly and vaguely in his anatomy, which later, Blumenbach had translated. Then he introduced a method of lateral incision for lithotomy (1730), which gained him the greatest applause. He had at first many failures in lithotomy, through the frequent injury of the rectum, which he honestly acknowledged, until his method, by which Morand saw him complete an operation in fifty-four seconds, gave him better results. From him we get the first description of neuroma. His best pupil was *Sharp*, of Guy's Hospital, who as a young man wrote a work on operation (1740), characteristic for clearness, brevity and simplicity, which England lacked at that time. An enemy to the mania for authorities, and the customary routine, endowed with great mechanical talent, he improved many operations and instruments, but carried it so far, that he looked with contempt on all directions for the adjustment of bandages. Whatever good French surgery accomplished, he brought to England, after his studies in Paris, in his "Critical Inquiry" (1750). *Bromfield*, at St. Luke's Hospital, was the champion of the isolated ligature of the arteries, for the drawing out of which he invented his hook. His successful exarticulations of the humerus are well known, as well as his successful extractions of foreign bodies from the knee-joint, his zeal against the abuse of amputation and bleeding, and against the debilitating treatment for erysipelas ("Chir. observ. and cases," 1773). *Charles White* of Manchester, as the father of joint resection became immortal. We owe to him the method of setting the dislocated upper arm by extension upward, and the recommendation of the amputation of the lower part of the femur, above the condyles ("Cases in surgery," 1770). *Benjamin Gooch*, in Shottisham, a bold operater, wrote much on wounds and stones, first observed a caput obstipum through shortening of the platysma myoides (1759), and invented a bandage for concrement of the knee-joint that the operation might be avoided ("Chir. works," 3 vols. 1792). *Alanson* in Liverpool, introduced a new flap in amputations (1779), and recommended thereby prima intentio. *Warner*, the successor of Sharp in Guy's Hospital, described fine operations in empyema, and specialized in diseases of the eyes, and of the testicles. His "Cases in Surgery" (1754) as well as those of *Wilmer* (1779) and Hill (1772) are rich in peculiar observations.

Percival Pott (1713–1788) was more eminent than these contemporaries. He had pursued his studies in Bartholomew's Hospital in London, had become assistant there and, soon afterward (1749), first surgeon. He held this position for thirty-eight years, then retired, and died a year later. Pott was considered the best practitical surgeon, the best teacher, the best writer, and the best operator of his time in London. However, had a few of his country-men inaugurated with him a new epoch in English surgery, the history of this verdict would have been changed. Pott may have surpassed his colleagues in scientific accomplishment and rich experience so far as actually to have commanded the most varied departments of practical surgery; the great honor of bringing about many reforms in English surgery remains to him; he did not make a new epoch, as did John Hunter. That time alone could alter that judgment, was due to the fact, that Potts's improvements were recognized by everyone, while John Hunter's higher intellectual attainment and the influence of his pioneer work were only fully appreciated by posterity.

A certain clumsiness and crudeness clung to many surgeons until within the eighteenth century. They gloried in a kind of cruelty and overlooked the feelings of the patients so far that the ordinary man must believe that the patient was not given proper care unless he was heard to groan. They did not understand the first principles of surgery; the after-treatment was tedious and painful, the bandage a heap of irritants, the instruments endless and awkward, the red-hot iron an attribute of every hospital visit. Pott opposed all this and showed that all we need to do is to observe the working of natural forces in the process of healing, not retard their operation but help them. Sometimes nature overcomes the worst art. Pott endeavored to make surgery less painful and operations simpler, to almost completely abolish the hot-iron, to use corrosives more sparingly, and especially to use fewer external remedies and fewer but more serviceable instruments. An instrument could not be too simple nor too sharp for him, and a bandage could never be light and soft enough. Pott considered the art of avoiding an operation and curing an injury without it, higher than that of operating cleverly, since it often required more skill and judgment to preserve a member than to operate on it. He noticed that his hearers, more than half of whom were apothecaries who when they came to London had seen little or nothing of surgery, as well as the many foreigners in his hospital, turned their attention almost wholly to operations. They judged the surgeon only by his quickness, and watch in hand timed him. Then he reminded them that while a certain celerity pertained to a good operation, the safety of it always stood first, but while he urged them to a diligent study of pathologic surgery, and influenced them against operations, he took care to train up good operators; this, however, was not to be the main object. For a long time his pupils were to see and think for themselves, since neither through the brief instruction of a few months' course in the hospital, nor through the study of books alone, could one acquire judgment and skill. The rules of writers are always but the outlines of a drawing which the surgeon has to fill in and complete. Pott insisted strenuously upon accurate sections and anatomic studies as the basis of surgery. A wide experience confirmed him in an aversion to all useless theories. He knew the old writers and sometimes quoted them, always quoting the Greeks in the Latin language (for at that time no one thought of reading Hippocrates and Galen in the original); but there was no trace of undue faith in authorities in him. One must accept the truths of the ancients, but one man can never demand blind faith of another, and regard for our forefathers must not restrain us from using our own reason. The honor of art suffers thereby as much as does our own moral

characters. If our minds, as Locke said, are possessed of the opinions of other people, even though they be true, we can not go a hair's breadth further in our own knowledge. On the other hand he perceived that the progress of a science is always due to the insight of a few preëminent men, and that their findings must almost of necessity be reduced to practical rules for the great mass of men, who think very little concerning what they see and read. In the belief that surgery would stand still if one were too vain to recognize, as an old man, the error of much that he had learned as a youth, he was honest enough to admit his changes of opinion, to which even the most clear-sighted and experienced men most often see forced upon them. It was even a greater mistake of that time to exaggerate the profession at the expense of truth, and to blindly believe whatever was maintained. If his opinion differed from that of other surgeons he contradicted them without injuring their reputation and standing. Mindful of the words of Seneca, that there is always something left to do, and that even after a thousand centuries no one will lack the opportunity to discover more. Pott was modest in differences of opinion and never forgot that those who come after us will always find plenty of occasion to wonder at the ignorance of their forefathers. He opposed quackery, which boasted especially in the treatment of hernia and fractures, and endeavored to enlighten the sick concerning their ills and the deceptions to which they were exposed.

Pott took single chapters of surgery and developed them into monographs in order to gain proficiency through detailed investigations. His style was masterly. He began with two excellent works on hernia (1756–57), in which he described inherent ruptures in which intestine and epiploön lay in the same sack with the testes, the various kinds of incarceration and the operation. Then followed investigations of the lachrymal fistula, in which the carious lachrymal bone was bored through with a curved trocar, and of rectal fistula (1761), for which he devised the so-called Pott's bistoury. His essay on fractures and luxations (1765), rich in new ideas, exercised the greatest influence in England; in it he discarded the too short splints and pointed out the advantages of a half curved position for the broken thigh. In his "Injuries of the Head" (1760–68) Pott showed an excessive preference for trepanation. He took up the diseases of the testes (1762–67) hitherto little known, distinguished the various kinds of hydrocele, and recommended the seton with the rejection of corrosives; he first described the chimney-sweeper's cancer (1775). In the operation for cataract he tried to again bring depression to its former importance (1775). Opposed to Bilguer, he upheld the necessity of amputations and set forth clearly the definite indications, as well as the most favorable time for operating. At the same time Pott published his most ingenious work, the discovery of caries of the spinal column, which received from him the name Malum Pottii ("Remarks on that kind of palsy of the lower limbs, which is frequently found accompanying a curvature of the spine," 1779). Pott's collected works were published by his son-in-law, Earle, in a complete edition (3 vols. 1790).

About this time Scottish surgery made a very marked advance, and this extraordinary impetus was due to certain entire families. There were four, the Monros, the Bells, the Burnses and the Hunters. The oldest, *Alexander Monro* (father), a pupil of Cheselden and Boerhaave, was professor of anatomy and of the surgical clinic in Edinburgh. He effected the establishment of the academic hospital there, and contributed much by his discourses, which were the first lectures of merit, much to the renown of the medical school established in the year 1720. A man of excellent character, full of ardent patriotism, he showed the warmest interest in the welfare of his city, became justice of the peace, director of the bank, and warden of the highways. He was the first to give lectures on comparative anatomy (1744). Besides many anatomic works in association with his sons, he declared himself with great vigor against the extraction of cancerous breasts, defended Petit's not opening the hernial sac and first suggested injections of wine in hydrocele. He insisted upon ligature of the arteries in amputation, and wrote a good book on caries. His surgical observations were collected in the "Medical Essays" of the college of Edinburgh physicians, as secretary of which body he published the first six volumes. His merit as a physician was not less eminent. The oldest son *Donald Monro*, as chief field physician in the Seven Years' War, reported upon camp fevers in the English military hospitals, and first recommended cooling remedies (poultices of ice, vinegar) in the treatment of aneurysms. He also prepared a complete edition of his father's works. To the youngest son *Alexander Monro*, professor in Edinburgh, we owe the first description of the bursa mucosa (1783), and the observation that the art. obturatoria sometimes encircles the neck of a crural rupture like a crown (1803); he made many anatomic investigations concerning the nervous system, the lymph glands and the testes.

Benjamin Bell, hospital surgeon in Edinburgh, established with his system of surgery (16 vols. 1783–88), the reputation of the second Scottish family. This compendium received the greatest applause at home and abroad, as there for the first time since Heister's book, was surgery treated in its entirety with the latest advancements. When A. G. Richter took the first volume in his hands he exclaimed "excellent! clean, instructive, practical, without hypotheses, and a man who has seen that whereof he speaks, and reflected upon that which he has seen." Benjamin Bell has the merit of the introduction of hollow splints (so-called English splints) in the treatment of fractures. His nephew *John Bell*, wrote on the nature and healing of wounds, and on the principles of surgery, portraying among other things the false traumatic aneurysm and the aneurysm per anastomosin very strikingly. His celebrated brother *Charles Bell*, in London, belonging rather to our century, besides producing many excellent observations and a work on operations, has reared an enduring monument to himself in the distinction of the posterior and anterior fibres of the spinal cord, and of the motor and sensory nerves.

In the Burns family, *Allan Burns* made himself known through a surgical anatomy of the neck, and the more illustrious *John Burns*, through a surgery and an anatomy of the pregnant uterus.

Among all the Scottish stars, the double-star of the Hunters shone the most brilliantly. The elder *William Hunter*, had studied theology five years when Cullen infused him with an interest in medicine and took him into his own house. After he had studied anatomy and obstetrics under Alexander Monro and Douglas, and had published his excellent researches

on cartilages, he became the successor to Sharp in the anatomic amphitheater in London. He began with lectures in anatomy, which at that time no one else in London taught, but he always had a severe oppression of the heart when he spoke in public. He sojourned several months in Paris and Leyden, where Albin's injections made a great impression upon him. Hunter then instituted the most minute anatomic investigations, injected the veins of the testicle with quicksilver, concerning which there is a conflict of priority with the younger Alexander Monro, and later published an anatomy of the pregnant uterus with thirty-four magnificent plates, in which he for the first time described the membrana decidua (1774). He became surgeon in the Middlesex Hospital, then director of the lying-in house. Soon he was named among the best obstetricians in London at a time when Smellie, in spite of his European reputation, was very unpopular on account of his coarseness. In 1750 Hunter gave up surgical practice and became a doctor of medicine. For his natural history specimens which he had collected from his youth up, he built at an enormous expense a large museum, to which he annexed a private anatomic amphitheater where he delivered his lectures. It was possible for him to do this on account of the great wealth which he had accumulated through a wide practice among the nobility, and as obstetrician to the Queen of England. Hunter had a violent disposition, severe with himself and without consideration for others, therefore he was more honored than beloved by his colleagues. Unable to bear contradiction, he involved himself in many quarrels and even became estranged from his brother. Full of courage and strength of character he did not understand the art of pleasing, and brought even into the salon of the queen a candor very rare at court. Much afflicted with gout, he was overcome with pain in the midst of a lecture and fainted. During his illness his spirit was strong and he said to a friend shortly before his death, "If I could only hold a pen I would write down how easy and pleasant it is to die." In later years, rather a physician and obstetrician than a surgeon, he made himself a name in surgery by a distinction of true, false and mixed aneurysms, by the first description of aneur. varicosum, and by researches in the dilatation of the pr. vaginalis and the nature of congenital hernia. Charles Bell and Brodie worked under him, and as his most illustrious pupil, his brother John.

A *turning point in surgery begins with John Hunter.* However great is the progress of surgery in the nineteenth century, yet, without belittling the merits of our contemporaries, we must assert that in surgery so great and all-embracing a genius has been born to no other people, even to our own day. John Hunter belonged to the extremely rare phenomena which appear only at long intervals, and he was equally great as a surgeon, anatomist, physiologist, pathologist and naturalist. The power of his intellect was so extraordinary that he ranks with Aristotle, Harvey and Bichat. If one would draw a comparison between English and French contemporaries, he would place Desault along with Pott, and Bichat with John Hunter. But the former limited himself to mankind, while Hunter extended his researches not only to the laws of disease among men and animals, but over the entire realm of nature, organic and inorganic, and sought to fathom all forms of life to the farthest depth. The object which he had always before his eyes was the discovery of the laws of life; for only an intimate acquaintance with them can elucidate the causes of disease, without the knowledge of which no one can be a surgeon. His mind moved so freely that the greatest projects could not overpower him. "Thinking gave him pleasure," as he himself declared.

Born in 1728, at Long Calderwood, the youngest of ten children, John was lazy at school, often played truant and wandered about the country. At 20, when it is said he could scarcely read and write (?), he went to his brother William in London, to devote himself to anatomy. His progress was so great that in the following year he took pupils for instruction. After his surgical studies with Cheselden, he became an assistant in Bartholomew's Hospital, and then house surgeon in St. George's Hospital (1756). William placed great confidence in his brother's talent and made him an assistant in his lectures. Although in many things they were but little in harmony, yet the enthusiasm for anatomy was for a long time the means of keeping a certain concord between the two hot-heads. Later they were estranged, when William, full of passion, assumed the priority in their work on the structure and veins of the placenta and their connection with the uterus, and John would not publish a preparation pertaining to it. Their skill in the art of preparing specimens soon commanded general admiration. For ten years John dissected only human cadavers, and then he perceived that in many complicated relations only comparative anatomy could give satisfactory information. But in his animal dissections he never lost sight of the anatomy of man, but sought for general principles. Cadavers from menageries, and as many rare animals as possible, were bought. The consequence of his undue exertions was an illness which, after an attack of inflammation of the lungs, obliged him in 1760 to undertake a journey and go into the army. For three years he served as a military surgeon, in Jamaica and Portugal and in the Seven Years' War, and there gathered experience in gunshot wounds. Then he settled in London and began his instruction in anatomy, giving attention to practical medicine and surgery. In order to pursue anatomy undisturbed, he set up in Earlscourt, two English miles from London, a menagerie with many strange animals, a part of which he tamed and observed their habits. Once two leopards broke out of their cage and went into the court of the house, where the dogs immediately fell upon them. Hunter hastened to the spot, and saw that one leopard was about to climb directly over the court wall, while the other bit at the dogs. He managed to catch and lock up both in their cages again. His fondness for his menagerie remained with him even when he was an old man. The mildest animals were always his favorites, and he had many kinds of oxen brought from all parts of the world. Even in his sixty-fourth year (the year before his death) he often fought with a small ox, a present from the queen; once the animal overpowered him, until a servant sprang to his aid. While he came away from his sports with wild beasts with a whole skin, he wrenched his tendon of Achilles in dancing. Upon the recommendation of his brother, Hunter became directing surgeon in St. George's Hospital (1769), by which his private practice was greatly increased. He then began to lecture on theoretic and practical surgery (1773). Whatever he could spare of time and money was consumed in collections, for which he kept a designer in his house.

From sunrise till 8 in the morning he was an anatomist. A severe illness made it necessary that his brother-in-law, Everard Home, whom he had taken as a partner, should prepare a catalog of his specimens, as he feared for the existence of his family. But soon afterward he bought two houses in Leicester Square, and had a large building erected near by for his collections, at a cost of £3,000. It contained special halls for specimens, lectures, meetings of physicians and surgeons, rooms for anatomic works, printing and the sale of works. After the collections were put in perfect order in the beginning of 1780, he showed it twice a year, from that time till his death, to his colleagues, the nobility and other favorites. In this cabinet, which with the help of his friends, whom he had explore for him, had increased to about one hundred thousand specimens, he had endeavored to present nature in gradations from the simplest to the most complex organisms, so that the form and structure of parts could be compared in the specimens of the most widely differing animal species placed side by side. Everything was included in four main divisions (for the organs of preservation, motion, perception and reproduction). Besides dried specimens and specimens preserved in alcohol, the cabinet contained a large number of drawings, many rare stuffed animals, skulls, skeletons, pathologic specimens, abortions, bladder, kidney and intestinal calculi, insects, shells and a well chosen collection of minerals. After Hunter's death, the cabinet was bought by the state and turned over to the College of London Surgeons. His library was comparatively small and consisted chiefly of natural history works; one might have heard him say that he read no medical and surgical books (?); at all events he opposed much reading.

(To be continued.)

SELECTION.

Seasonal Influences upon the Infectious Diseases.—Dr. Andrew Davidson, at the last meeting of the London Epidemiological Society, read a paper on fluctuations in epidemic affections by seasonal influences, noting the variations in different countries and regions. Seasonal differences are frequently supplemented by parallel conditions of temperature and moisture of the soil, as was seen by the curves representing the single wave of cholera in the temperate climates and the single or double curves observed in India, where it was endemic, depending on the period of the rainy season or monsoons. In seeking the causes of these seasonal variations the diseases due to facultative saprophytes existing in the soil, such as cholera, enteric fever, malarial fevers, must be considered separately from smallpox and measles (obligatory parasites), which could be influenced by meteorologic conditions indirectly only, through the action of these on the resisting power or the habits and surroundings of the individual. Smallpox and measles had similar autumn, winter, spring and summer curves; and when introduced into a highly susceptible community spread irrespectively of season until the susceptible material was exhausted. The heights of the spring and autumn curves of measles were reversed in the English and Scotch towns, as well as in other countries. But comparing compound curves of series of years with single ones, it was seen that in most years only one was strongly marked.

"Habits of life, over-crowding in cold or wet weather, and the aggregation of children in schools, were factors not to be ignored, and as regards the latter it was a common occurrence in Germany and Poland for an epidemic of measles to be restricted either to the Christian or to the Jewish population. Smallpox and measles had one or two annual curves in Bagdad, but were wholly absent during the absolutely rainless summer months. In London the death rate from measles was highest in the second quarter in epidemic and in the fourth in non epidemic years; but Dr. Davidson could not say whether the prevalence or the case mortality corresponded to the number of deaths, though the Hamburg returns showed such to be the case in that town. He would suggest in explanation of many of these phenomena that in non-epidemic periods only the more susceptible were attacked, and that the virus passing through such individuals gained in intensity and the disease spread further; but that when, as in epidemics the more resistent were attacked it became alternated in them until it died out. Why epidemics should usually occur in winter and spring it was not easy to say. In Europe, India and America smallpox followed approximately the temperature curve, though it began to rise in winter when the temperature fell, but attained its maximum with the spring. The regular appearance of smallpox in the winter was ascribed by Flügge to the aggregation of persons indoors, the less frequent change of clothing, and the neglect of ablutions in cold weather; but this would not account for its maximum prevalence in early summer, and the conditions of domestic life in Europe did not apply to India where the same general curve was followed by the disease. It was easy to understand that facultative saprophytes multiplying in the soil were dependent on temperature and moisture, but these conditions could not directly affect those obligatory parasites whose soil was the living body; and these diseases followed their usual course irrespectively of climate and temperature. He had seen smallpox raging in Madagascar in 1868 when the temperature ranged between 90 and 100 F., and in 1870 it prevailed in the Hudson's Bay Territory with the thermometer at 4 degrees F. below zero. All alleged relations between the prevalence of measles and the temperature were true of particular countries only, and therefore could only be accidental. Weather conditions tending to induce catarrhs of the pharyngeal and the respiratory mucous membranes could not fail to render the individual more susceptible to infection from diseases, such as scarlet fever, diphtheria and measles, which were known to enter the body by these surfaces, and in like manner catarrh of the gastro intestinal canal favored the development of cholera and typhoid fever.—London *Lancet*.

Fallacies as to Birth Rate Statistics.—The latest compilation made of birth rate figures shows the rate in Nevada to be 16.30 per 1,000, so that its population would die out completely in less than one hundred years. Maine follows with a birth rate of 17.99 per 1,000, which gives its population about a century longer to exist. New Hampshire is third with 18 per 1,000, Vermont fourth with 18, and California fifth with 19 per 1,000, or nearly 12 per cent. less than the rate in France. This fact the alarmist statistician finds to be most striking, in view of the favorable climate, ample area and diversity of interests in the State. Following California is Connecticut, which has a birth rate of 21.3 per 1,000. Massachusetts has 21.5. Rhode Island has 22.5, a somewhat higher rate than the French, but still insufficient to prevent the extinction of the population within two or three centuries. Wyoming, with its 21.8, comes between Massachusetts and Rhode Island, while Oregon has a rate of 22.5. The conclusion drawn from these statistics is that within a period varying from sixty to two hundred years, according to circumstances, the population of New England and the Pacific coast will be replaced. This gives a good chance for the alarmist to arise and bemoan the condition of the Gaelic and Anglo-Saxon peoples, but the total extinction of these races in any given locality is not to be expected, the statisticians to the contrary notwithstanding. A low birth rate is not a mark of decadence or degeneracy anywhere; it is a mark of the disparity between the sexes in the population of any State or country. Statisticians make usually the mistake of estimating the growth of population not by the actual number of births, but by the relation which the number of these births bears to the total population. It is from this that they get their elusive "birth rate," and a little examination of the facts on which their last alarming bulletin is based will show

this conclusively. In Nevada, by the last Federal census, the number of males in the State was 30,000; the number of females was 16,000. Thee were nearly twice as many males as females, but the statisticians, taking no regard of this disparity, based their estimates on the number of births to the total population, and thus arrived at the conclusion that the population of this State, as of other States on the Pacific, was dying out. In Oregon, by the last census taken by Federal authority, there were 180,000 males and 130,000 females, and in this State, for the same reason as in Nevada, the birth rate appears to be small. California is another State which the statisticians aver will at the present rate soon become depopulated. Theoretically, so to speak, it may; actually the population has increased from 380,000 in 1860 to 560,000 in 1870, 865,000 in 1880 and 1,210,000 in 1890—quite a rapid increase for a State which, according to the statisticians, is becoming depopulated. The reason of their error is the same in California as in Oregon and Nevada. By the last census the number of male residents of that State was 700,000 and of female residents 500,000.

For a similar reason, the New England States on the Atlantic seaboard have a low birth rate. The only difference is that in these States the disparity is on the other side of the column; there is an excess of female residents. In Rhode Island, for instance, by the last Federal census, there were 10,000 more female than male inhabitants in a State the total male population of which was 158,000. In New Hampshire the excess was 3,000, in Connecticut it was 7,000 and in Massachusetts it was 64,000. There is no danger of the depopulation of any American State. In some rural localities, it is true, population has fallen off, due to emigration to more fertile and productive regions, but if there be any pessimist about who is expecting the depopulation of any American State "within a period varying from sixty to two hundred years," he may better abandon his fears.—*New York Sun.*

PRACTICAL NOTES.

Radical Cure of Alopecia Areata.—Lorot proposes to remove the part affected, if of small extent, an insignificant operation, the scar being concealed by the hair. It is efficient in preventing contagion, especially in the army where the disease often assumes the proportions of an epidemic.—*Gaz. M. de Liège*, June 24, *Ind. Méd.*

Success of Methyl Blue in Albuminuria.—Lemoine describes the remarkable benefit he derived from methyl blue in seven cases of albuminuria in Bright's disease (*Nord. Med.*, July 1). It is soon eliminated through the kindeys without inconvenience, except possibly in some cases a slight smarting during miction, which can be prevented by adding a little nutmeg; 0.20 to 0.50 centigrams in twenty-four hours are sufficient.

Traumatic Endocarditis.—Litten asserts that traumatisms of the trunk may occasion grave endocarditis, even in the absence of any lesion of the skeleton or of the skin. There is an acute or subacute endocarditis of this nature which usually terminates in a chronic cardiac lesion (mitral or aortic insufficiency or stenosis). Recovery from this endocarditis is very rare. It sometimes assumes an infective character. The traumatism may lacerate the valves, especially the semilunar valves of the aorta, more rarely the mitral valve.—*Deutsche Med. Woch.*, June 10.

Functional Insufficiency of the Pylorus.—Zavadsky has recently treated three patients whose food passed into the intestine without remaining in the stomach at all. There was no gastro-intestinal disturbances, the appetite was good, but each meal was followed by a diarrheic evacuation, and bile seemed to be constantly present in the stomach. He secured prompt cure by administering nux vomica and iron, rinsing the stomach with water at 15 degrees C. every second day, hydrotherapy (river baths), and ordering that a belt be worn.—*Sem. Méd.*, June 9.

Results of More or Less Complete Obstruction of the Nose.—It has been suggested that many anemic conditions, etc., are to a more or less degree due to obstruction of the nose, producing numerous derangements, both in respiration, mastication and anatomic development, far more than has been hitherto realized. The organism does not obtain the requisite amount of oxygen, the secretion of saliva is affected, sleep disturbed, and the necessity of securing free nasal respiration is shown to be imperative, in an article in the *Presse Med.* of June 16, which describes the numerous evils of buccal respiration.

To Prevent Absorption of Perspiration in Orthopedic Corsets.—Vulpius has a tricot stuff made with a coating of the best rubber on one side. He applies this to the skin, or plaster cast, with the rubber side in smoothing out all wrinkles. It is perforated to allow for circulation of air. The corset is never worn next to the skin nor over the shirt, but over rather fine-meshed tricot underclothes which cling to the body without a wrinkle, and allow the air to circulate between it and the apparatus, which remains unaffected by the perspiration for two or three years.—*Cbl. f. Chir.*, June 26.

Adjustable Crutches.—Many persons temporarily lame do without crutches on account of the expense and trouble of procuring them, which much retards their complete recovery. To remedy this, Dr. O. Thilo has invented an adjustable, folding crutch which he keeps on hand and lends to such patients, and also recommends for hospital use and for growing children. The crutch is shortened or lengthened by moving the foot piece up or down in a metal shell that holds it; the cross pieces are secured with an iron rod, fastened with a copper nut at each end. The shoulder rest is a piece of webbing. The foot piece is made in three lengths for children, medium-sized and tall persons.—*St. Petersb. Med. Woch.*, No. 25, 1897.

Citric Acid in the Treatment of Wounds.—G. Müller had been treating a wound for four months that absolutely refused to heal in spite of massage, hydrotherapy, and the most approved methods of treatment, ancient and modern, when he casually applied the juice of a lemon to the wound and was surprised to note that it at once commenced to heal and complete recovery soon followed. He applied the juice of a lemon twice a day, with compresses of the same. The effect on other cases since has been equally favorable.—*Wien. Klin. Woch.*, June 10, from *Therap. Mon.*, No. 4.

Preventive Temporary Tampon in Operations on the Hollow Abdominal Organs.—C. Lauenstein has for years been using a simple process to prevent infection in his abdominal operations, which, as he has never seen it mentioned, he describes in the *Cbl. f. Chir.*, June 19. In a gastric fistula, for instance, from perforation of an ulcus ventriculi through the anterior abdominal wall below the left costal arch, after the contents of the stomach have been withdrawn, he packs the stomach with one very long strip of gauze, leaving the end hanging out. The suturing is done with the gauze still in the stomach, which prevents anything escaping from the stomach; as the suture progresses the gauze is gradually withdrawn until it is all out before the final stiches are taken.

Fractures of the Spine.—Poller's article on this subject is being copied extensively by the foreign exchanges, appearing originally in the *Arch. f. klin. Chir.*, Vol. liv, p. 289. He advocates forcible reduction under chloroform the moment the patient has recovered from the shock of the traumatism. He has thus cured six very serious cases. In twenty-two cases there have been no accidents; partial paralysis has never been transformed into total, and there have been no subsequent

lesions of the spine. He agrees with Küster that it should be attempted even in old cases, resorting later to surgical intervention, if it fails. After reduction the patient is placed in bed and undergoes extension and counter-extension for several weeks. During this period he must be carefully watched to see that the bladder and rectum perform their functions properly, with massage, passive movements and electricity to combat paralysis and paresis. The mouth and skin should be carefully attended to, and before leaving the bed, at the end of a month or two, the patient should be suspended in a Sayre apparatus several times a day for fifteen or twenty minutes. He should then wear a Sayre corset and walk with a cane for a few days.

A New Throat Spray.—Dr. H. L. Armstrong, surgeon to the Manhattan Hospital, recommends the following prescription as almost a specific in acute inflammation of the upper air passages, both of the traumatic and nervous varieties:

Eucain	10 grains
Cocain, mur.	10 grains
Aq.	6 ounces

Misce. Sig.—Spray every hour in the nose sufficient to be felt in the throat.

If the patient is taught to inhale while using this spray, so that the solution may be carried well within the larynx, it is far more beneficial than it otherwise would be. The advantage of this combination is that while cocain is a valuable remedy of itself the danger has been the liability of the patient to become addicted to its use. By the combination of eucain, which is a thorough local anesthetic in the nose, the nervous excitability produced by cocain will not be developed, thereby making the prescription perfectly safe, as nobody will contract the cocain habit by using this combination.—*New York Medical Journal.*

How to Apply the Tampon.—Dr. J. R. Dodge in *Annals of Gynecology and Pediatry*, article "Embryonic Miscarriage" gives advice as follows: "An ordinary bivalve speculum will answer every purpose; some prefer Sims' and the lateral position. In placing the tampon much care should be exercised in laying the foundation. The lint or cotton should be firmly packed around the cervix including the posterior cul-de-sac, and pledget after pledget should be laid on until the vagina is firmly and solidly filled. After removing the speculum several large pledgets of cotton placed over the external end and firmly held in position by a T-bandage secured by a strap around the body above the hips will complete the operation. Whatever is used in the formation of the tampon, whether it be cotton batting, lint, or strips of cloth, should be aseptic as far as possible, and the pledgets should be secured to a string with the end left protruding for its better removal." Remove tampon in six or eight hours if needed, but sooner if by cessation of pains it is evident the uterine contents have been expelled. "There need be no fear of internal hemorrhage," continued the writer, "for the uterine cavity is quickly filled and further oozing an impossibility. If the fetus has been expelled and the afterbirth still retained and not easily reached, the tampon may be replaced for a time. No physician should consider his patient safe until he has secured the removal of the secundines in any case of miscarriage which has advanced beyond the second month of pregnancy."

Comparative Diagnosis in Pulmonary Tuberculosis by the Roentgen Rays.—Stubert (*Medical Record*, May 22, 1897, p. 733) reports a series of seventy-three cases of pulmonary tuberculosis studied by means of the Roentgen rays and the fluoroscope. He found that in cases of slight infiltration of one or both apices there is a haziness or fog between the light and the observer, the clavicle in other instances appearing to have a gauzy veil thrown over it. When there is marked consolidation the transmitted light is relatively less, the edges of the clavicle are indistinct, or the bone may be invisible. When there is present the same pathologic condition at both apices it is an easy matter by comparing the two sides to decide at once on which the disease has made the most progress. Comparative shadows at the apices are generally seen more distinctly from behind than from in front, by directing the patient to bring his shoulders forward so as to separate as widely as possible the scapulæ and then placing the fluoroscope directly over the spinal column. Ordinarily a practiced eye can, by these methods alone, clearly distinguish areas of the most incipient infiltration, but if it is desired to be more accurate in defining their limits a metal rod may be placed evenly against the chest walls in front or behind and move up and down with the fluoroscope until its outline becomes more distinct, which will indicate that the upper and the lower borders of the consolidation have been reached. If a pencil mark be now made along the edge of the rod and subsequently percussion be practiced, the area of dulness will be found between these lines. In cases of complete dulness, say to the second interspace, with relatively less dulness for one or two interspaces below, a dark shadow will be seen over the first-named region, which will gradually shade off consecutively into haziness and normal reflex of light below, the area of haziness corresponding to the limits of relative dulness. In one or two instances slight haziness was observed in spots that at the time showed no other physical sign of disease, but where later disease developed. The results of the studies thus made may be summarized as follows: 1. Slight haziness indicates the beginning of tuberculous infiltration and may or may not be accompanied by dulness on percussion. 2. Decided shadows indicate consolidation, the extent of which is in direct relation to the comparative density of the shadows thrown on the fluoroscope. 3. Circumscribed spots of bright reflex, surrounded by narrow dark shadow rings, or located in the midst of an area of dense shadow, indicate cavities. 4. Intense darkness, especially at the lower portion of the lung, indicates old pleuritic thickening over consolidated lung tissue.

Treatment of Habitual Constipation in Women.—The constipation that results from lack of tone in the muscles concerned in defecation may have been caused by some lesion in child-bearing, or it may be nervous in its origin, which occurs also in men. The treatment of both is the same to bring these muscles up to tone. Pincus, the German gynecologist, accomplishes this by his "abstinence cure," which he claims will absolutely cure the most obstinate and inveterate cases of constipation from this cause. He first prepares the patient by a preliminary course: examining for uterine or adnexal troubles for which he orders vaginal injections at 38 to 40 degrees C., every day for a week, taking the temperature carefully and accepting the slightest rise in the temperature during this period as a contra-indication for the "abstinence cure." If the patient is nervous, he orders 1 to 3 grams of bromid a day, for a fortnight, with an enema of 2 grams of asafetida, and the yolk of an egg in 75 grams of water, or instead of an enema, a belladonna suppository (2 to 3 centigrams). If there are spasmodic contractions of the abdominal muscles a bag of sand is laid on the region for one to three hours a day or, better still, a kneaded mass of clay weighing from 500 grams to a kilogram. The continuous pressure of this fresh moist clay cures the spasms completely in three to eight days. In case of stercoral infection, the bowels are evacuated with injections of 7 per cent. salted water, or of pure oil, with a few doses of castor oil, avoiding all other purgatives. When all these precautions have been taken, he commences his cure immediately after a menstrual period. Every purgative or injection is forbidden, but there should be systematic massage of the abdomen, with Swedish gymnastics, and faradization of the intestines may be useful. The patient should be instructed to go to stool every day at a certain time, whether she feels any desire or not, and contract the levator ani morning and night thirty times, as if striving to restrain an imminent defecation. She should also roll around upon her abdomen before rising and retiring, for five to ten minutes, a bag filled with angular pebbles or scraps of iron. If the abdomen is flabby it should be frictioned with a brush, a wet compress applied at night, under an impermeable covering, and a belt worn. The treatment requires a month or two, including the preliminaries. The first spontaneous evacuation occurs in from three to ten days.—*Sem. Méd.*, June 9.

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SATURDAY, AUGUST 7, 1897.

THE DIETETICS OF GLYCOSURIA.

In the treatment of diabetes mellitus the diet has been almost universally considered to be the one all-important matter. The disease, probably as little understood heretofore in its intimate nature as any one in our nosology, has been held to consist mainly in an abnormal excretion of sugar, and all other symptoms have been generally held to be dependent upon this. Just how excessive sugar excretion could produce the whole series of morbid phenomena no one has successfully endeavored to explain; the fact has been accepted and has been made the basis of the treatment. It has been practically assumed that the excess of sugar in the urine must be due, chiefly at least, to an inability of the system to dispose of sugar-producing foods, which normally constitute the larger bulk of our diet, and that the waste thus brought about was, if not the direct cause of all the morbid symptoms, at any rate an index to the gravity of the condition of the sufferer. The carbohydrates were therefore considered his greatest enemy and naturally to prevent their entering the system was the first indication for the treatment. It can not be claimed, however, that the prognosis of the disorder has been decidedly improved, in spite of the elaborate dietetic tables that have been contrived, or even that life has been materially prolonged by their means in the more advanced stages of the disease. It certainly is not made more endurable, even in the milder forms, where dieting does limit the sugar excretion. In the severer types where sugar continues to be excreted in spite of an exclusively proteid diet, the latter is certainly ineffective enough to have its usefulness questioned, and that being the case it may be asked if the stereotyped diabetic diet lists, impracticable as they are in some cases, and uncomfortable enough in all, should be adhered to. In fact, have we not followed a *post hoc, ergo propter hoc* reasoning too blindly in taking the excretion of sugar as the one important clinical symptom of the disease? The relation of sugar in the urine to the other symptoms is not so clear that we must necessarily assume it as causal and believe that with its reduction everything else in the morbid syndrome will mend. It may be, and probably is, only one incident of the general vice of nutrition that constitutes the disease and which in all probability depends primarily upon some serious disturbance of the central nervous system. PAVY has thought that this must be sought for in the vasomotor centers causing capillary dilatation and hyperoxidation of the blood, but, however it may be brought about, the probability of the original lesion of diabetes being in the nerve centers is one that should be recognized. How this is to be reached by treating the one symptom of glycosuria is not altogether demonstrable.

In the very thorough study of this subject by Dr. MUNSON, published in the JOURNAL a few weeks ago, he states "that there has apparently been of late an undercurrent of thought to the effect that possibly the complete exclusion of carbohydrates from the diet might not be an unalloyed blessing to the diabetic." His papers, however, form it is believed one of the most complete and thorough discussions of the subject and its literature in our language, and his conclusions, illustrated as they are by a case in his own actual experience, are certainly worthy of careful consideration. The facts that sugar is produced in the system by the splitting up of proteids, and that the most rigid exclusion of carbohydrates does not suppress its production or its excretion in extreme cases, that even the diabetic requires a certain proportion of sugar in his blood and possesses still a power of consuming it, and that this, if not supplied by carbohydrates, must be furnished by the albumins, are all very significant, and it is remarkable that more attention has not been given them before. In fact, aside from possible local effects upon the urinary passages, we know of no certain reason why a certain excess of sugar ingested should not be normally excreted without serious systemic disturbance, as is the case with many other substances; and this is the fact in ordinary dietetic glycosuria, which, considering the ordinary unlimited ingestion of saccharine substances, must be more frequent than is commonly supposed. In diabetes, however, this single symptom has masked the whole pathology of the disease, has become the disease itself in the mind of physicians generally, and therefore the sole object of the treatment. There is hardly another so striking example of this error of

taking a part for the whole in all medicine—assuming these views to be correct.

Dr. MUNSON is of course not the first to except to the accepted views of the treatment of diabetes; there has been, as he says, an undercurrent of opposition to them for some time past. For example SAUNDBY, at the International Medical Congress of 1894, read a paper favoring a change in the general practice of withdrawal of all carbohydrates from the diet of diabetics, and for allowing them so much of such substances as did not materially increase the urinary sugar, and others have published cases showing, like the one given by Dr. MUNSON, that the patient's general condition improves under such allowance. If this instead of the quantity of sugar excreted were generally taken as a guide, it is probable that there would be some change in the common views as to the therapeutics of diabetes. There would at any rate be probably less complications from the production of auto-intoxications by a diet that is abnormal in health, and that can hardly be expected to be all that is demanded by the disordered organism.

Even if Dr. MUNSON's opinion, that the sufferer from diabetes requires sugar in his diet even more than a person in perfect health, be not accepted as too extreme, there is still evidence enough to warrant a very material alteration in the hitherto accepted views of the necessary dietetic treatment of the disease. If possible, we should aim to meet the neurosis itself, and not be led aside by a single predominant symptom, and this can not well be done by still further crippling an already depleted system.

THE GENERAL PRACTITIONER HIS OWN HEMATOLOGIST.

In these busy days, a period which in the history of medicine, will be known as "The Age of the Specialist," the general practitioner must hail with delight a branch of the science so rapidly opening up before him. Let us see what can be done with only a microscope, the possession of which instrument should be the first aim of every physician.

A drop of blood from the lobe of the ear, hastily touched by the center of a clean cover-glass, is deposited on a warm, highly-polished slide and a single layer of corpuscles thus spread. With a little experience one can readily tell if the drop is more concentrated than normal or is hydremic. Examination with a one-twelfth inch oil immersion will determine the relative size of the red corpuscles, their shape, the approximate number of white to red, and detect the presence of parasites; a few minutes' search may clear up a case of malaria which has been puzzling the diagnostician many weeks. To a favored few will it be fated to study the filaria sanguinis hominis or the spirochæte of relapsing fever. Should our patient live at a distance, that need not deter one from an examination of his blood; a drop of blood drawn between two cover-glasses and allowed to dry can be "fixed" and kept in equal parts of absolute alcohol and ether until ready for examination. These specimens are first stained. Staining three to five minutes in a ½ per cent. alcoholic solution of eosin, washing off excess and counter-staining a few seconds (10 to 15) in a weak aqueous solution of methyl blue will be adequate for almost every case. Under this process the red cells are stained red and the white blue, the nuclei of the white cells (also of the red if nucleated reds are present), being especially prominent.

Eosinophilic and neutrophilic granules are also stained a red color, the shades depending on affinity for eosin and the length of time the various stains have been used. The Ehrlich "triple stain" is most suitable for staining leukemic blood.

In the stained specimens another factor may be taken into consideration, the "differential count." A ratio of the varieties of white corpuscles having been fixed upon as normal, it was thought that a considerable variation from this standard might point to some pathologic condition, and such has been found to be the case in tuberculosis and other wasting diseases, where the lymphocytes are greatly increased in percentage. The method is to count 1,000 white cells, noting in the appropriate column whether lymphocyte, large mononuclear leucocyte, polynuclear neutrophile or eosinophile. These terms will become perfectly familiar after a few hours' hard study of a well-stained specimen.

In addition to the above, the presence of bacilli, cocci, myelocytes, nucleated red corpuscles, and other pathologic products may be determined by careful search.

So much then of blood-work can be done by every physician or one familiar with the microscope; no other instrument is necessary. How much more might be accomplished by the judicious expenditure of a little time and money in the Thoma-Zeiss "counter," the Fleischl hemometer and other so-called instruments of precision. An exact knowledge of the number of white and red corpuscles per c.c., the percentage of hemoglobin, the specific gravity of the blood, is of paramount importance in the diagnosis of leukemia, pernicious anemia and chlorosis, while the treatment of these diseases follows the diagnosis as but one of its corollaries. A favorable prognosis can often be made in pneumonia by the presence of a considerable leucocytosis, while the latest achievement in hematology, the blood-serum method of diagnosis of typhoid fever as introduced by PFEIFFER and WIDAL, will give an impetus to this infant science along a new line that will soon cause an examination of the blood to become as routine a procedure as an examination of the urine.

SWIMMING AS AN AGENCY IN HYGIENE AND THALASSO-THERAPEUTICS.

The late Sir HENRY HOLLAND, who died at an advanced age, declared in his memoirs that his life had been exceptionally happy, and that he attributed much of this to the two months' holiday that he took every year. Although we can not all be court physicians, yet most of us acknowledge the wisdom and propriety in the suggestion as to holiday diversion. Sitting in stuffy offices during sweltering weather, waiting for patients who perhaps never come, or traversing sun-baked streets in his daily rounds, the fancy of a weary physician, like that of a starving man at a barmecidal feast, turns to the fresh blue sea with its foaming rollers tossing upon the beach, and his mind teems with recollections of Newport, Narragansett or some less favored places, that since the time CHRYSES wandered disconsolate and silent by the sounding main, the sea and its shores have been resorted to for health and recreation, while numerous writers of more recent date have extolled the ocean as a health resort, and have sung the praises of sea bathing.

Nearly every one knows the rejuvenating effect of a trip across the Atlantic, and the new lease of life imparted to many by a short sojourn at the seaside can not be over-estimated. All things considered, no form of outing is superior to a course of thalasso-therapeutics, and of all the great adjuvant means or agencies that may serve alone or collectively to this medication none surpasses swimming. If the individual who goes in for this sort of thing does not swim, he should learn and be made to recognize the necessity of an easily acquired art, the educational, hygienic and therapeutic value of which is beyond question.

In the British Isles enthusiasm for this delightful amusement and useful accomplishment grows each successive year, and it is taught and practiced to an extent little realized by Americans. Indeed it is generally agreed among populace, educators and physicians, that the advantages of learning to swim when young are incontestable. Dr. CLEMENT DUKES, physician to Rugby school, in "Health at School," says, "I lay special stress upon the value of swimming, baths and bathing. Every school that can possibly manage it should have a place in which the boys can learn and practice swimming."

At many of the large schools in England lads are obliged to pass in swimming before they are allowed to go out in boats. This rule, established at Eton in 1840, has been effectual there in the prevention of drowning, only one case having occurred since that time, although the swamping of boats has been frequent. A yearly average of 150 boys learn to swim and pass the test.

At Harrow, where Lord BYRON of Hellespontine renown and Sir ROBERT PEEL learned to swim, the well-known "Duck Puddle" is the favorite place for learning and practicing the natatory art. The knowledge here acquired has served many in good stead in after life, a notable instance being the son of Sir ROBERT PEEL when shipwrecked by night in the Mediterranean.

At Rossall, every boy, unless specially exempted on medical grounds, must practice swimming.

At Uppingham, one of the largest schools, swimming is considered of the highest importance.

Swimming is also recognized officially as a subject of instruction in the elementary board schools of England, and the London School Board recognizes swimming as a subject under their code.

Numerous swimming clubs exist all over Great Britain, among them clubs for women. The Woman's Union Swimming Club was highly commended by a woman physician a few years ago in one of the medical journals, and at least one English girl holds a record for a ten-mile swimming event.

This aquatic zeal, like the morning drum beat of the race who are its chief exponents, appears to have encircled the earth, for in distant Australia and far-away New South Wales, similar enthusiasm prevails as in the mother country. The records of the swimming associations in these colonies are among the most creditable. In New Zealand the swimming clubs as a body are endeavoring to bring about provision by education boards for organized instruction in swimming, to classify swimmers uniformly, to induce the State to issue certificates of proficiency, to promote a more general acquaintance with the steps taken to restore animation and effect rescues, and to that end give greater encouragement to long distance events and to life-saving competitions.

Great loss of life from drowning is one of the strongest arguments in favor of swimming. In the JOURNAL, June 27, 1889, under the head of "Bathing and Boating Accidents," attention was called to the frequency of drowning, and in treating the medico-legal relation of death from submersion, the chapter in WITTHAUS and BECKER'S "Medical Jurisprudence," refers to modern statistics, which show the great development of this class of emergency. We need, moreover, only take up our morning paper at this season to see frequent accounts of drowning, which are all the more sad for the reason that most of them arise from inability to swim in circumstances where only a moderate knowledge of the art or even a few strokes would have sufficed to save life. To be sure, good swimmers are sometimes drowned, but exceptional occurrences of the kind in no way invalidate the benefits of swimming, in view of the multitudinous number who are saved through knowing how to swim. Ample proof of this statement is within the knowledge and experience of nearly every one who has lived near the water. We know personally some very poor swimmers who have thereby saved their lives,

and of some very valiant ones, distinguished for saving the lives of others. A few years ago an English ship off the Newfoundland Bank was run down at night by a steamer and almost instantly sunk, when the thirteen men of the crew jumped overboard. Of this number the only one drowned was a Russian who could not swim. The others were rescued through ability to swim until picked up. At Montreal in 1893 several yachts carrying thirty-five people were capsized by a sudden squall and sunk. Every one on board, including one woman, could swim. All were rescued after the accident.

Similar instances, citable to indefinite extent, are as numerous as the works on balneology and hydrotherapeutics, subjects that in late years have been studied with such profundity as to give rise to the brief and precise term, "medical thalassology." Questions of the kind have been discussed at two congresses of thalasso-therapeutics within the last four years, one at Brussels and the other at Boulogne-sur-Mer. The discussions at these meetings show pronounced unanimity as to the action of swimming and sea bathing upon the organism, the consecutive effects leading to decongestive action of the internal organs, tonification of the skin and muscles, and in general to a tonic and vivifying action.

Briefly speaking the hygienic indications are that children profit more from thalasso-therapeutics and support it best. Young girls at puberty with retarded menstruation from atony of the genital organs, overworked school boys, young women suffering from atonic sterility and people suffering from general fatigue or languishing health are greatly benefited, but the very old profit less.

As a curative means it is incontestable that the methods of thalasso-therapeutics are in the first line as regards lymphatism and scrofulo-tuberculosis with all its manifestations, and in rachitism it is the preferable mode of treatment. Other therapeutic indications are found in the seminal losses dependent upon genital abuse, in the menstrual troubles of young girls at the epoch of puberty, leucorrhea, chlorosis, metrorrhagia; in the diseases of women, as dysmenorrhea, amenorrhea, different lesions of the uterus, uterine neuralgia, sterility, gastralgia and dyspepsia connected with menstruation. It is, moreover, indicated in convalescence and in chronic maladies, as diabetes, obesity, impaludism, provided that the patients have enough reactive force.

The marine cure is also beneficial in chronic respiratory ailments, as bronchitis, asthma, whooping-cough, emphysema and even in pulmonary tuberculosis of torpid form if treated at a Southern resort. Chronic indigestion, neuralgia, dry skin diseases and chronic rheumatism likewise may be added to the list.

The exercise of swimming besides acts as a counterpoise to the more sedentary employments and physically less active life of women, and if nothing more could be said in its favor, it is of inestimable value in banishing permanently the "backache" and migraine so prevalent in the sex. Increased activity of the heart and lungs, the action of muscles not ordinarily used, the tonic effect of cold immersion, exposure of the naked body to actinism of the sunlight and an exhilaration akin to flying are conditions that conduce to the elimination of urea and the abolition of dyspepsia and insomnia, and are superior to the tent-cure, to massage, electricity or drugs. From the less stable equilibrium of the nervous system, women are, as a rule, extremely sensitive to the tonic influence of cool or cold water, and any thing which promotes this habit in them should be specially encouraged. It is authoritatively stated that there is no class of diseases in which the effects of thalasso-therapeutics are more conspicuously beneficial than in that termed nervous from whatever cause proceeding. Hence neurologists recommend swimming or sea bathing as one of the best adjuvants in the treatment of functional nervous diseases and have the satisfaction to get most encouraging results in hypochondria, hysteria, chorea and in sexual neurasthenia.

A therapeutic agency so potent for good is not without its dangers and contraindications. If used indiscriminately it may become a species of quackery which destroys life. There are, of course, many weak people whose chest organs are in such a condition that they should not venture to swim. Heart disease, aneurysm, Bright's disease, organic disease of the central nervous system and advanced tuberculosis are contraindicated, nor should the subjects of gout or eczema with secretion be advised to take the cure.

Knowing the reconstructive power of the agencies of which we write to be undisputed, and being aware of the fact that it is easier to increase health than to diminish sickness, these remarks were meant to apply in a hygienic rather than a therapeutic sense.

The neglect to learn swimming in childhood is responsible for many flabby hearts, weak lungs and torpid minds. From the view-point of physical education it is clearly of the highest importance that all young persons, especially girls, be taught swimming, since we are dependent upon them for the make-up of the next generation. The smattering of physiology with other things of doubtful utility now taught girls at school is absolutely worthless, and according to high medical authority, even hurtful. A prominent New York physician on a late visit to a well-known girls' college was invited to attend the class of physiology. The instructress, proceeding to demonstrate the uterus and ovaries, used a cat for the purpose. The class dismissed, the doctor happened to look at the cadaver, which, to his utter astonishment, proved to be a "tomcat."

Less physiology of this kind, less piano, less alge-

bra and other inanities that go to make up the curriculum of a girls' school, may well be put aside for more wholesome and useful instruction that shall contribute to domestic and family happiness by returning to more rational conditions. Then half the chronic diseases resulting from or aggravated by artificial habits of civilized life will disappear; domestic infidelity and divorce proceedings will be less frequent, and the increased prevalence of sexual perversion, existing at present as the disturbance of a badly balanced nervous system, will be among the diminished things of the past.

THE REPORT OF THE BRITISH VACCINATION COMMISSION.

We are glad to have at last the actual report of the British Vaccination Commission before us, more or less imperfect abstracts of which have been published.

After seven years work, during which time the Commission held 136 meetings, examined 187 witnesses, and investigated six epidemics, a voluminous report is offered. The Commission was appointed in May, 1889, and among its members are some of the most prominent physicians of Great Britain. The objects of the Commission were to investigate:

1. The effect of vaccination in reducing the prevalence of and mortality from smallpox.

2. What means other than vaccination can be used for diminishing the prevalence of smallpox, and how far such means could be relied on in place of vaccination.

3. The objections made to vaccination on the ground of injurious effects alleged to result therefrom, and the nature and extent of any injurious effect which do in fact result.

4. Whether any, if so what means should be adopted for preventing the ill effects, if any, resulting from vaccination; and whether, and if so by what means, vaccination with animal vaccine should be further facilitated as a part of public vaccination.

5. Whether any alterations should be made in the arrangements and proceedings for securing the performance of vaccination, and in particular, in the provisions of the Vaccination Acts with respect to prosecutions for non-compliance with the law.

The report first reviews the subject of smallpox historically, and reiterates the accounts of the horrible devastations of this scourge. It is recalled that in Europe in the last century, smallpox killed 500,000 people annually; that it caused half the deaths of children under 10 years; that to it was attributed one-half to two-thirds of the blindness; and that it was severely epidemic about once in three years. No class of people was exempt. Six members of the family of WILLIAM III. died from smallpox, and the monarch himself was permanently marked. Illustrative of its great prevalence in England, it is stated that in the town of Chester, in 1774, with a population of nearly 15,000, and without any exceptional sanitary disadvantages as such affairs stood in those days, 93 per cent. of the inhabitants had had smallpox.

The practice of inoculation until its prohibition in 1840, and the gradual popularity of vaccination until the principle of compulsion, first introduced in the Act of 1850, are reviewed. Further legislation founded on the assumption of the efficacy of vaccination was instituted in 1867, 1871, 1874 and 1879. Arguments are advanced that conclusively show the enormous decrease of the disease after the acceptance of vaccination, and that also prove that the decrease was not due to the great decline in the practice of inoculation, nor to improved sanitary conditions. There is no evidence of a noticeable decline of smallpox in the unvaccinated countries during the same periods; and there was no lessening of the mortality from other infectious diseases such as measles, scarlatina and whooping-cough.

Inquiry into recent epidemics in England definitely proves the protective influence of vaccination, and the greater the number of vaccination marks the greater the protection. After reviewing the evidence the Commission find:

1. That vaccination diminishes the liability to be attacked by the disease.

2. That it modifies the character of the disease, and renders it less fatal and of a milder type.

3. That the protection it affords against attacks of the disease is greatest during the years immediately succeeding the operation of vaccination. It is impossible to fix with precision the length of this period of highest protection. Though not in all cases the same if a period is to be fixed, it might fairly be said to cover in general a space of nine or ten years.

4. That after a lapse of the period of highest protective potency, the efficacy of vaccination to protect against attack rapidly diminishes, but that it is still considerable in the next quinquennium, and possibly never altogether ceases.

5. That power to modify the character of the disease is also greatest in the period in which its power to protect is greatest, but that its power thus to modify the disease does not diminish as rapidly as its protective influence against attacks, and its efficacy during the later periods of life to modify the disease is still considerable.

6. That re-vaccination restores the protection which lapse of time has diminished, but the evidence shows that this protection again diminishes, and that to ensure the highest degree of protection which vaccination can give, the operation should be at intervals repeated.

7. That the beneficial effects of vaccination are most experienced by those in whose case it has been most thorough. It may be fairly concluded that where the

vaccine matter is inserted in three or four places it is more effectual than when inserted in one or two places only, and that if vaccination marks are of an area of half a square inch, they indicate a better state of protection than if their area be all considerably below this.

The Commission believes that there is no evidence to substantiate the statement that vaccination has increased the mortality from tabes mesenterica, scrofula, pyemia, bronchitis, diarrhea and skin diseases. The possibility of infection with syphilis and erysipelas is acknowledged, but the sum total of the real dangers of vaccination is insignificant when compared to the enormous good of vaccination.

To afford absolute security against the communication of syphilis, calf-lymph is recommended; and the Commission advise that so long as vaccination is compulsory, the patient or the parent should be allowed the choice of calf-lymph or humanized lymph. To further diminish hostility to vaccination, it is recommended that there should be an extension of age within which vaccination is required, and that vaccination vesicles should not be opened without adequate reason.

Immediate notification of the disease, and hospital isolation of the patients and isolation for sixteen days of all those who had been in immediate contact with them, offers the only substitute for vaccination; and in reviewing this subject the Commission can see nothing to warrant the conclusion that in Great Britain vaccination might be safely abandoned and replaced by a system of isolation.

Further recommendations are:

That power should be given to the sanitary authorities to give compensation for loss of wages occasioned by isolation; that notification of smallpox should everywhere be made compulsory; that increased powers should be given to local authorities with regard to common lodging-houses; that re-vaccination should be encouraged without being made compulsory; and that persons committed to prison by reason of non-payment of penalties under the vaccination laws should no longer be treated as criminals.

The Commission offers no satisfactory substitutes for the Compulsory Acts. Any half-way measures seem to allow so many avenues of avoiding compliance with the Acts that they would soon become virtually inoperative.

The report of the majority is signed by eleven of the thirteen members of the Commission. Mr. JONATHAN HUTCHINSON and Sir WILLIAM HUNTER, possibly the most prominent and influential members, do not sanction any relaxation of the existing compulsory laws, and even recommend compulsory re-vaccination. Four members dissent from any form of compulsion, believing that the offer with appropriate arguments should be made to the patients and parents, leaving them free to accept or reject. Two alone of the Commission, Dr. COLLINS and Mr. PICTON, question the efficacy of vaccination.

CORRESPONDENCE.

The Organization of the Missouri Board of Health; A Letter to the Governor by C. H. Hughes, M.D.

ST. LOUIS, MO., May 25, 1897.

HON. LON. V. STEVENS, GOVERNOR OF MISSOURI:

Dear Sir:—Yours of the 22d inst. is received. My idea about appointments on the State Board of Health from the standpoint of a chief executive acting for all the people would be that all interests should be represented in proper ratio. The preponderating interests should be the majority of the people through the medical men who represent them. Every lawfully recognized medical interest should have a place on the Board in proportion to ratio of population. The people who employ the regular medical methods of advanced modern medicine being preponderatingly ascendent, should have the majority. Regular modern medicine is in no sense a theoretic school of medicine, nor the "old school," nor allopathic school, as the homeopathists derisively term it. Its votaries administer treatment on the allopathic, contrapathic, homeopathic or any other principle. It is simply rational medicine founded on observation, experience and the study of the human machine and how to regulate it, in health and disease, so as to keep it running best and longest.

A century ago the practice of medicine was as different from the practice of today as methods of transportation are as compared with those of today. The regular profession itself was divided between theorists. The theory of Hahnemann was in vogue as that of Paracelsus, a regular physician, only Hahnemann cut away and made an exclusive system of practice and adopted the infinitesimal dosage idea.

Laboratory study and biologic investigation, vivisections and animal experimentations, supplanted all the theories with facts of physiologic and chemic research and made a new medicine, and the regular practice is the newest of all schools of medicine, if a practice that accepts everything that cures, unhandicapped by any theory of its action, can be called a school. We ignore the term as a misnomer, as we reject the epithet, allopath, as too restrictive and sectarian, as homeopathy is. Scientific investigations, continuous observation and enlightened experience guide the best minds in regular medicine. It has learned some things that are good from homeopathy and adopted them and some things that are bad and rejected them. Personal proving without physiology and pathology is fallacious. Medicine is a developing science and its practice an evolution. No broad-minded observer, no matter how he starts or what he professes, if he has a naturally qualified medical mind, can honestly continue through life a sectarian physician—an exclusive pathist of any kind. There is but one place for a physician and that is unhandicapped and without a sectarian designation, free to choose from all sources in the regular profession.

I do not approve of persecution or censure of the sectarian physician, nor of excluding him from fellowship with regular physicians, if he drops his trade mark, as many do and more are now doing. Men become sectarian physicians as they join churches, because of environment, wife, mother, etc., and when a woman's arms are about a man what can he do?

I hope you will constitute that board as it seems to me you are in duty bound to do, recognizing all interests. It is not with you a question of schools but one of the people.

I object to the procedure at Fulton, not because the hom

eopathists should not have a place to be treated in but because regulars who represent so large a part of the people should not be turned out to make a place for them and because the act is in its nature *ex post facto*, the patients having been sent there for regular treatment. As a physician I should object to real, honest old time homeopathy because of its fallacy and inadequacy, not because some superior homeopathic physicians do not show more skill than some inferior regular physicians, for medical practice is much in the man and his personal judgment.

Before you finally act on this subject I hope you will fully inform yourself as to the status of this sect with reference to onward-marching modern medicine that has done in the last third of a century and is now doing so much for mankind, and not be influenced by the stale old cries of old school, nauseous drugs, allopath, etc., against the most advanced of all scientific pursuits of our day. Modern hygiene, neurology, bacteriology, quarantine, the study of the causes and prevention of disease, antiseptic surgery, etc., all belong to regular medicine. All that homeopathy accedes to or uses is taken from the work of our laboratories, clinicians and savants. While a sect in medicine or religion should be recognized by the State, it should not be placed in a position to dominate the non-sectarian.

On reflection, I think it would be an unjust stab at the large college interest in the State and at the honor of college men, not to allow it representation on the Board. It strikes me that one or two fair-minded men might be selected from all interests involved. I think the college men know best what the schools want and if no one college should have a majority fairness in action would be assured. Regular medicine is undoubtedly entitled to larger and permanent representation, not alone because it is now the newest, most advanced and most liberal school (if you insist on the term), and the most truly eclectic, for it gathers freely from every source that may enlighten or cure, but from a sound political standpoint, viz., it represents the greater number of the body politic. More of the people prefer it and employ regular physicians than the sects in medicine and, hence, as their chief executive representative you are in duty bound to regard their wishes and interests. You are the people's spokesman and servant in the the premises. Yours very truly, C. H. HUGHES, M.D.

The Treatment of Typhoid Fever.—A Reply to Dr. John Eliot Woodbridge.

RICHMOND, VA., July 19, 1897.

To the Editor:—The JOURNAL of July 17 contains a communication from Dr. John Eliot Woodbridge criticising my paper published in the current number of the JOURNAL, June 3. I would pass this communication unnoticed, but the writer overlooks my disavowal in my paper of any intention to treat him with discourtesy, and descends to offensive personalities. I pass these by with the single criticism that Dr. Woodbridge has misunderstood me.

I read the paper in the Section of Practice at the recent meeting of the ASSOCIATION. Dr. Woodbridge was a member of that Section, and I do not understand *why* he should have waited until now to criticise my position. If not present at the time my paper was read he was when the discussion came up. I was not present during the few remarks he made, and which are reported in the proceedings. His criticism of the earlier part of my paper is not worth noticing. I leave it to a discriminating profession whether a room will be better disinfected by the methods suggested in my paper, or by his method of "sending a stream of formaldehyde gas through the keyhole, and the next night use the room with safety as a surgical ward." What does he send it in with? He should tell us all about it. It seems to me a consistent suggestion, and as gassy as his other assertions. But I am not inaccurate, nor have I misrepresented him. Messrs. Parke, Davis & Co. have scattered broadcast over the country a pamphlet purporting to be extracts from Dr. Woodbridge's paper read before the Section on Practice of the AMERICAN MEDICAL ASSOCIATION, and other societies, and if he is disingenuous enough to take my quotations in my article and compare them, he will find the quotations accurate to the letter, and I again assert that such assertions do not commend themselves to the mind of any physician familiar with the causation and pathology of typhoid fever. There is a question of accurate diagnosis when he tells us the patient must "be put on the treatment when first seen; if you await pathognomonic symptoms, it will not always succeed." Strange he has no criticism of my quotations from Tyson and I. C. Wilson. I am in very good company with these gentlemen, and Osler and many others of the best authorities the land over. I deny that I have made any unjustifiable or unprofessional attack upon members of the AMERICAN MEDICAL ASSOCIATION. There are hundreds of good men who fail to analyze cases and treatment, and specious statements, made like those in Dr. Woodbridge's papers, find many followers, and accurate observations *are not made*. I want to *know* from these gentlemen how this treatment cures. I want them to tell us something of the nature of the disease, and how, when the poison has been multiplying and developing the clinical conditions present in typhoid fever, all of these morbid conditions can be aborted. Grant for argument's sake that every case was correctly diagnosed, I commend to his consideration the following, freely quoted from the authors to whom they are accredited, and ask him how he gets over these undeniable facts:

"The typhoid bacilli gain access by the intestinal tract and enter the lymph structures of the intestines, developing there, elaborating toxic principles, which give rise to the constitutional phenomena. The bacilli are not found in the fecal discharges in the early course of the disease, but first appear about the time of the necrosis of the lymph elements. *These facts justify* the assumption that *the bacilli do not develop, as do those of cholera, in the lumen of the gut.*" (Italics mine.)

"Infiltration attains its maximum development at the end of the first week, and the tenth day of the disease. Rapid necrosis now takes place, and the sloughs separate about the latter half of the second and the first of the third week." "The mesenteric glands show histologic changes similar to those in the intestinal structures. . . . Other lymphatic glands may undergo enlargement; notably those in the fissure of the liver." "Spleen enlarged in over 90 per cent. of cases. Investigations of Walter Reed, at Johns Hopkins, show that the lymphomata of Wagner are in reality areas of necrosis (in the liver); as to whether due to the direct action of the bacillus, or caused by the toxalbumins, has not yet been definitely determined. Reed considers the latter most probable. In the kidneys, similar changes to those described in the liver have been found. When suppuration occurs, miliary abscesses are found, and typhoid bacilli have been found in these minute collections of pus." ("American System of Practice," Loomis-Thompson, pp. 173-179.)

The *above* sustained by Tyson: "There are instances of the general infection of the body, etc.," see Osler, second edition, p. 11. See also clinical history and pathology described in Wood and Fitz.

Now, sir, I commend to Dr. Woodbridge and his endorsers the above authorities, and deny, backed by such unquestioned authority, that it is possible for him, or any other man, to abort typhoid fever by seeking by such depressant methods as he recommends, to take out of the system the infectious principle. There is a period of several days to several weeks of prodromes, *the patient is not seen until after* the system is too fully under the influence of the disease to have it cut short.

It is true, I do not possess a knowledge, "either theoretic or practical," in line with the Woodbridge methods, but a large experience for thirty years, and the small mortality of 6 to 7 per cent. in the treatment of typhoid fever contradicts the statement of a failure to understand the disease from every standpoint. I did not deal with statistics in my original paper, because I did not think it required, except in the discussion of the Woodbridge method. I leave it to any candid man to read the testimonials of the Woodbridge treatment and compare them with those of any quack nostrum, and draw the distinction if he can. It is only necessary to refer to Dr. Woodbridge's paper of July 10 of the JOURNAL. Dr. Woodbridge charges me with gross misrepresentations. I venture to assert that in my own city and State my reputation for fairness and truth, for accuracy of observation and progressive professional methods, is fully equal to Dr. Woodbridge's, and will be attested not only by my professional confrères, but by many students whom I have taught.

Dr. Woodbridge's assertions are fallacious, based on faulty principles, and he, not I, shows gross ignorance and assumes a knowledge of the pathology and nature of the disease which *nothing* he has written sustains, and finds its outcome in a treatment so unscientific as to make it the solemn duty of every lover of his profession to denounce it as a piece of routinism and quackery. He cries out because he is hurt. I leave him to a discriminating profession.

Very respectfully yours, J. M. UPSHUR, M.D.

National Examining Board.

LYLE, MINN., July 27, 1897.

To the Editor:—Has there ever been anything done to foster the idea of or create a *National Examining Board*? I believe a movement of this nature would meet with the support not only of every reputable practitioner but of the present *State Boards* as well. Nothing is more commendable and more enthusiastically supported by the best class of physicians than the increasing standards being required in several States to obtain a license to practice medicine. A rigid examination should be passed before a license is granted; but the rank injustice of the present system is apparent to anyone who will give it a moment's thought. If a physician is located near the line as I am here he will be required to pass an examination in two, three or possibly four States to practice in one district. If one should desire to change his location to another State, there is the examination again. It is not only a nuisance and an expense, but requires a thorough review of technical points that are never used in practice. I would like to add to your cry for a "Department of Public health" and a "National Examining Board." S. H. RABUCK, M.D.

ANSWER:—For articles on National Examining Boards see the JOURNAL, vol. xviii, May 15, 1892, p. 610; vol. xxvi, May 16, 1896, p. 950.

Is Diabetes Increasing?

PHILADELPHIA, July 31, 1897.

To the Editor:—In an editorial in one of your recent numbers the stand is taken that diabetes is increasing in England and America, because the reports from city hospitals show an increase. I will not attempt to dispute the figures, but I only wish to point out a possible cause for the increase.

Diabetes is supposed to be common among Jews. In the last fifteen years there has been a great influx of Jews from Russia to both England and America, and as a rule they remain in the cities. To my own personal knowledge the patients who present themselves at the dispensaries of the large Philadelphia hospitals are largely from this class, consequently this fact alone may serve to increase the number of cases of diabetes in London, New York and Philadelphia.

No doubt other diseases peculiar to races will be found to be on the increase from like causes. At least, immigration is a factor that must be considered in a matter of this sort.

Very respectfully, M. V. BALL, M.D.

BOOK NOTICES.

Text-book on Mental Diseases.—By THEO. H. KELLOGG, A.M., M.D., late Medical Superintendent of Willard State Hospital, etc., etc. Octavo, 792 pages, illustrated by original sphygmographic tracings and photographs of the different types of mental disorder. pp. 776. Extra muslin, $6.00.

It is a pleasure to review this work, which is dedicated to the distinguished editor of the *Medical Record* of New York, as follows:

"George F. Shrady, A.M.,M.D., in special appreciation of his persistence and able advocacy of progressive and scientific methods of treatment of the insane; in recognition of his useful and distinguished professional career as Medical Editor and manager of State Hospitals, and visiting and consulting Hospital Surgeon; and as a personal tribute to his sterling traits of character."

The author's long experience as Superintendent of Hospitals for the insane and in the treatment of mental diseases has given him a right to have an opinion on the diagnosis and treatment of the various types of insanity.

The work opens with a chapter on the history of insanity. It also includes a historic sketch of the general condition and treatment of the insane, and the summary survey of the evolution of the science of psychiatry. The chapters are divided as follows: 2. Statistics of Insanity. 3. Nosology. 4. Etiology. 5. Termination of Mental Disorders. 6, is divided into three sections under the general head of Psychical Symptomatology. Chapter 7, on Somatic Symptomatology, is divided into eleven sections, viz.:

1. On the Defects and Pathological changes of the Osseous System.
2. The Muscular System.
3. The Vascular System.
4. Changes in the Cutaneous Surface.
5. Splanchnological.
6. Nutritive, Secretory and Trophic Disturbances.
7. Disorders of Cerebral, Spinal and Nervous System.
8. "On the Pathology of Insanity," is divided into two sections, viz.: 1. On the Pathogenesis of Mental Disorders. 2. Pathology of Insanity, the Macroscopical Changes and the Microscopical Changes.
9. Diagnosis of Insanity, including feigned Insanity and the deduction of various forms of malingering.
10. Prognosis of Insanity.
11. Treatment of Insanity, including prophylaxis.

Part 2 is on the special groups and typical forms of insanity, and contains twelve chapters, viz.: 1. Insanity from general organic arrest of development. 2. Insanity from Neuropathic State. 3. Insanity from Established Neurosis. 4. Insanity from Physiological Crisis. 5. Insanity with General Systemic State. 6. Insanity with Definite Lesions of the Cerebral, Spinal and Nervous System. 7. Psycho-Traumatic Insanity. 8. State of Depression. 9. State of Exaltation. 10. State of Mental Weakness. 11. State of Stupor. 12. State of Impaired or Suspended Volition.

It will be seen that the treatise is at once systematic and comprehensive, and we have no hesitation in commending the book as an entirely trustworthy volume in the study of mental diseases. The work is destined to take high rank as a standard treatise on the subject.

The National Confectioners' Association of the United States.

This little volume published in 1897 from the office of the *Confectioner's Journal* is a handsomely printed volume, on good paper. It contains extracts from Constitution and By-

laws, list of officers and members and organization and object of work, pure food and pure candy laws of each State in the Union as they were in force April 1, 1897.

On account of these laws being so collected the book should have a permanent place in the library of every sanitarian as a reference volume.

System of Diseases of the Eye by American, British, Dutch, French and German Authors. Edited by WILLIAM F. NORRIS, A.M., M.D. and CHARLES A. OLIVER, A.M., M.D. Vol. ii, 214 illustrations, pp. 556. Philadelphia: J. B. Lippincott Co. 1897.

This magnificent system has been given a handsome setting by the publishers; inset plates, beautiful paper, and excellent illustrations make it a pleasurable task to give it notice. This part of the system is given to chapters on examination of the eye, school hygiene, statistics of blindness and antiseptics.

The contributors to this volume are J. Snellen of Utrecht, Holland, L. Laquern, M.D., Strasbourg-en-Alsace, Germany; George M. Gould, M.D., A.M., Philadelphia, Pa.; Edward Jackson, A.M., M.D., Philadelphia, Pa.; Adolphe Javal, Jr., Paris, France; William S. Bennett, M.D., New York City; George T. Stevens, M.D., Ph.D., New York; Herman Wilbrand, M.D., Hamburg, Germany; William Thompson, M.D., Philadelphia, Pa.; S. D. Risley, A.M., M.D., Philadelphia, Pa.; I. M. Hays, A.M., M.D., Philadelphia, Pa.; J. A. Andrews, M.D., New York City; Jos. McFarland, M.D., Philadelphia, Pa.; Samuel S. Kneass, M.D., Philadelphia, Pa.

The articles of Snellen, Laquern and Wilbrand have been carefully translated. As all the articles in the volume are written especially for it, the whole appears as a new contribution to the subject.

Dr. Thompson in his article on Color Blindness, in writing of the main impetus of the practical side of this question omits reference to the pamphlet of Professor Henry of the Smithsonian Institution, and does but scant justice to the work of Jeffries. (Page 316.) And he omits all reference to the work of the United States Government in the examination of pilots, the initial step of which was taken by the editor of this journal, then at the head of the Marine-Hospital Service in 1880, in first giving facilities for voluntary examination of seamen. The matter was subsequently taken up and made compulsory by the Board of Inspectors of Steam Vessels; this was done before the system was introduced on railroads, although no one would suspect it from reading the article of Dr. Thompson. The instance quoted on page 330 of the Steam Tug Lumberman, originally appeared in the Marine-Hospital Service Report and the finding of the color-blind pilot was the direct result of the orders issued in 1880. Jeffries' book as mentioned in Thompson's article refers to the second edition only; the book was originally published in 1879, and at that time there was nowhere in this country a systemized test for color blindness of the personnel of any railroad employes or the merchant marine in the United States. With the exception of the historical matter, however, the article is an excellent one, although it may be doubted whether the Thompson method of using the worsteds is any improvement over the original plan of Holmgren.

It is an ungracious task to refer to any defect in so excellent a work, but our duty is clear. The second volume of the system contains internal evidence that it will undoubtedly last for many years as the standard American work of reference on the eye. The other two volumes of the system we are informed will speedily follow.

The Eye as an Aid in General Diagnosis, A HAND-BOOK FOR THE USE OF STUDENTS AND GENERAL PRACTITIONERS. By E. H. LINNELL, M.D. Philadelphia: The Edwards & Docker Co. 1897.

The object of this book is to show that the examination of the eyes affords valuable aid in the diagnosis of diseases of the nervous system as well as of numerous affections of other organs and to induce the practitioners to pay more attention to this too much neglected subject.

Possessing the experience of a general practice of twenty years and fifteen years of experience as an oculist, the author is singularly well qualified to produce a book, which though written from the standpoint of a specialist, is perfectly suited to the understanding of the general practitioner. The first part of the book is devoted to the eye symptoms of nervous and constitutional diseases. The author taking up the various parts of the eye in their anatomic order from the lids and conjunctiva to the retina and optic nerve, points out the local affections and the general diseases they are symptoms of. This part closes with a very practical reference list of diseases arranged alphabetically, with their more or less characteristic eye symptoms.

The second part, treating of the reflex neuroses, deserves our highest praise; it is an admirably well written statement of the etiologic relation of certain ocular affections to the functional nervous diseases and, on the other hand, of the dependence of certain functional eye troubles upon reflex actions emanating from distant sources of irritation.

The third part discusses the ocular affections of toxic origin; and closes with a very complete index, which is of the greatest value in a book of reference. We wish this book would find a place in the library of every progressive physician; it would then not fail to fulfil its mission to impress upon the practitioners the diagnostic importance of the symptoms in general diseases.

Suppression and Prevention of Leprosy. By ALFRED S. ASHMEAD, M.D., late foreign medical director Tokay Hospital, Japan. Paper. Illustrated, pp. 96. Norristown, Pa.: Herald Printing and Binding Rooms.

The author briefly considers the history of the microbe, the non curability of leprosy and the conditions predisposing to leprosy, going more into detail on the horrors of leprosy, necessity of absolute isolation and the idea of a national lazaretto. Touching on the relation of the church to leprosy, leprosy in Japan and the advantages of asepsis, he concludes that nothing "has been done for the leper through the discovery of the bacillus, or in any other way. . . . That consequently anybody who *seriously, truly* wishes for the abolition of the terrible disease, can hope for nothing else but isolation, and isolation absolutely alone."

Schaefer's Course of Practical Histology. By EDWARD ALBERT SCHAEFER, I.L.D., F.R.S., Jodrell Professor of Physiology in University College, London. Second edition; 12mo. 307 pages, 59 engravings. Cloth, $2.25. Philadelphia and New York: Lea Brothers & Co. 1897.

It has been some time since the first American edition of this work appeared and the reader who peruses it will recognize as careful condensation and method of arrangement as in the first edition. New illustrations have been added, with description of new processes necessary to bring it to include the result of recent progress in histology.

The student will find this book one of the most trustworthy condensed guide books on the market.

Sixteenth Report of the State Board of Health of Wisconsin.

The report covers the biennial period ending Sept. 30, 1896. Besides containing the "General Report of the Board," "Report of the Secretary," "Report of the Inspection of the Different State Institutions" and "Report of Delegate to the Conference of State Boards," we note "The Purification of the Water Supply of Ashland by Sand Filtration," and "Enteric or Typhoid Fever," articles of much value. The report also presents a list of health officers of local boards, and extracts showing the general health of the different cities and towns. Dr. U. O. B. Wingate is secretary of the Board.

Transactions of American Pediatric Society. Eighth Session, held at Montreal, Canada, May 25, 26 and 27, 1897. Edited by FLOYD CRANDALL. 1896.

This volume contains the minutes of the eighth annual meet-

ing, address of the president, various papers read, and the report on antitoxin, which we have heretofore printed. These papers have been printed in abstract in the JOURNAL and in full in the *Archives of Pediatrics*. The illustrations are excellent and the mechanical execution of the work fair.

PUBLIC HEALTH.

Health of Denver, Colorado.—The Bureau of Health reports twenty-seven cases of infectious and contagious diseases reported in June 1897, with fourteen deaths therefrom, as compared to thirty-nine such cases reported in May, with nine deaths therefrom. The total number of deaths, in Denver, for the year ending June 30, 1897, was 1,696, a rate of 10.60 per 1,000 per annum.

Who Pays for Preventing Spread of Contagious Diseases?—The Indiana statute provides that the Board of Commissioners of each county shall constitute a Board of Health *ex officio* for the county, "whose duty it shall be to protect the public health, by removal of causes of diseases, when known, and in all cases to take prompt action to arrest the spread of contagious diseases, to abate and remove nuisances dangerous to the public health, and perform such other duties as may, from time to time, be required of them by the State Board of Health pertaining to the health of the people." In carrying such purpose into effect, according to the meaning of the statute, the appellate court of Indiana says, April 2, 1897, it might become the duty of the county, under particular circumstances, to supply medical service, medicines, nurses, shelter, fuel, food and raiment for patients taken for the time being under the control of the board, and placed in such situation that such provision would be a necessary part of the protection of the public health. At the same time, it says that it does not mean to indicate what would be the proper conclusion in this regard in other cases. It only decides that where, as in the case of Board of Commissioners of Jay County v. Fertich, the patients remain in their own home, and are not shown to be indigent, but, for all that appears, are amply able to pay for medical treatment of the disease with which they are afflicted, and the case differs from other cases of illness in the fact that the disease is contagious, and that, therefore, for the protection of the public health, they are quarantined, the only expenses which should fall upon the county, within the intent of the statute, are such expenses as are properly attributable to measures taken for the prevention of the spread of the disease. It draws the line at requiring the afflicted persons to defray expenses not incurred for their own benefit. And it suggests that the particular items of expense for which allowance should be made will vary with changed circumstances.

Compulsory Vaccination of School Children.—The question whether or not the State Board of Health, or the school directors of a district, acting under its orders or otherwise, had any power to impose, as a condition of the admission of children to the public schools, the requirement of vaccination, was considered by the supreme court of Illinois, in the case of Potts v. Breen. Its decision was that neither had the power. No such power had been conferred on the State Board of Health, it said, unless by the broad and general language of the statute which provides that "The State Board of Health shall have the general supervision of the interests of the health and life of the citizens of the State." But that was not intended to confer plenary powers on the board. It had and could have no legislative power. Its duties were purely ministerial and the foregoing provision could not be held to confer that broad discretionary power contended for, to prescribe conditions upon which the citizen of the State might exercise rights and privileges guaranteed to him by public law. As recently held by the supreme court of Wisconsin in a similar case, the powers of the State Board of Health are limited to the proper enforcement of statutes, or provisions thereof, having reference to emergencies requiring action on the part of the agencies of government to preserve the public health, and to prevent the spread of contagious or infectious diseases. The right or privilege of attending the public schools is given by law to every child of proper age in the State. Whether the legislature has the power to make vaccination a condition precedent to the exercise of this right or not, was not decided. It could not be supposed that it had undertaken to do so by mere implication. No one would contend that a rule enforcing the use of antitoxin as a condition precedent to the admission of a child to the public schools, would, as the law now is, be valid, however fully satisfied by learning and experience that it would prevent the spread of diphtheria. And when vaccination is compulsorily applied it must, like all other civil regulations, be applied in conformity to law. In cases of emergency it might be proper, in the exercise of the police power of the State, to exclude children from the public schools on the ground that they refuse to be vaccinated. Undoubtedly, also, children infected or exposed to smallpox may be temporarily excluded, or the school may be temporarily suspended. But this power ceases when the necessity ceases. Nor have school directors and boards of education authority to exclude children from the public schools for refusing to be vaccinated, unless in cases of emergency.

The "Animal Odor" of Milk.—Dr. Huff of Rome, N. Y., has recently reported to the Board of Health of that city upon the commonly unnoticed elements of contamination of milk within the dairies themselves. He says: "Consumers of milk have often asked me what was the cause of a peculiar odor, characteristic of new milk, that is usually considered as being one of the necessary elements of milk. My observation leads me to believe that nine-tenths of the so-called 'animal odor' is caused by imperfect circulation in the skin of the animal and by particles of dung falling into the pail of milk. Cattle are milked in stables reeking with filth, and with swarms of flies congregating upon the strainer that is placed upon the can, and the milk is filtered over the carcasses of drowned flies that may have just been feeding upon the sputa of a consumptive or regaling themselves upon other putrid or offensive matter, and their excrement is washed into the can of milk to be sold to the public. The udder is frequently washed by dipping the hand into the milk that is in the pail, or by milking into the hand and then washing the teat with the milk. Very seldom will one see the udder washed with clean water or wiped with a clean cloth. And it is said that in cases after the cow had put her foot into the pail half full of milk, the milk went in with the rest and the consumer was none the wiser. A very small percentage of dairy farms are supplied with water of good quality and sufficient quantity.

"As a healthy cow will consume from 30 to 100 pounds of water per diem, the influence that a supply deficient in quantity and quality would have upon the milk is obvious. It is not an uncommon thing to see the drainage from the stable passing into the stream from which the cows drink. Cows confined to the stable require a space of 800 sq. feet each to obtain sufficient oxygen to aerate the blood properly, but we usually see cattle huddled together in as close a space as possible, generally allowing each cow about 275 to 300 square feet, where they are compelled to breathe and rebreathe the contaminated atmosphere because the dairyman informs us he can get more milk from them if they are kept close together. The majority of stables are built as cheaply as possible, and are roughly finished inside and out, furnishing nooks and crannies for dirt to locate and to propagate disease. The floor frequently consists of 12-inch planks laid side by side, just where the hind feet of the cows are placed and the milker stands when milking, and a trench about a foot wide behind the cows for the excrement to fall into. There is not one stable in a hundred that has any way of flushing, and no greater percentage has

any system of drainage. There are stables that have stood for years upon the same ground and have contained hundreds of cows, and all the liquid manure made in them has been allowed to soak into the ground and there remain. There has been so much said about milk containing germs of disease that it seems almost unnecessary to mention the fact, but we are so forcibly reminded that dirt and filth are the abiding places of disease and that cleanliness is the surest guide to health, that your attention is again called to it and you are again warned of the danger that exists. The dairyman is a citizen and entitled to all kindness and courtesy, and in making changes in the arrangement of stables and methods of handling the product, we should remember that we are in a position to be of great assistance or to work a cruel hardship. We should endeavor to make changes in a kindly manner, but with all the firmness that a public servant should have. No honest dairyman should or would object to a strict observance of sanitary measures, but the dishonest dairyman must be controlled."

NECROLOGY.

HUGH FLOURNOY MCNARY, A.B., M.D. (*vide* JOURNAL, p. 1045), born at Princeton, Ky., Jan. 15, 1837; son of Dr. Thomas Logan and Maria Louisa Flournoy McNary. He graduated from Cumberland College, Princeton, in 1857. He studied medicine in his father's office, and attended a course of lectures at the Medical Department of the University of Louisville, 1860-61. Proceeding to Harvard University, he graduated in the Medical Department of that institution in 1863. He entered the United States army volunteer service as assistant surgeon at Camp Nelson, Ky. He served subsequently at the General Hospital at Jeffersonville, Ind. He and Dr. Middleton Goldsmith accompanied the expedition of General Banks in the Red River campaign. He left the service of the United States army on Aug. 31, 1865, and settled in Louisville, for the practice of his profession. In 1867 the Governor of Kentucky appointed Dr. McNary physician to the Western Kentucky Lunatic Asylum at Hopkinsville. Tiring of this service, he resigned in 1869, and returned to Princeton, the home of his youth, where he was elected city and county health officer. He had a large practice, and was devoted to society work, rarely missing a meeting of his local or State society; and frequently attending the AMERICAN MEDICAL ASSOCIATION as a delegate from Kentucky. In the quiet pursuit of his practice at Princeton, he ceaselessly pursued the study of his profession. In 1895, when Wm. O. Bradley was elected Governor of Kentucky, he appointed Dr. McNary superintendent and physician in charge of the Central Kentucky Asylum for Lunatics. Dr. McNary entered upon the duties of this office with a full sense of his responsibility. He looked into every detail of the management of the institution; inaugurated new methods of general management; classified and arranged each subordinate department, and suggested vast and important enlargements and improvements in the buildings of the institution, which were rapidly advancing to completion, when a fatal affection of the heart seized him, and on May 12, 1897, he breathed his last in the home of his brother-in-law, Judge Darby of Louisville. No man in the medical profession of Kentucky was more widely and favorably known. He was a most genial companion, fond of good fellowship, and indulged in no dissipations. Those who knew him throughout his whole professional life, miss him sadly. He was a scholar gifted with superior powers of expression, an easy and fluent writer, yet he contributed but little to the literature of medicine. In the meetings of our local and State medical societies he always contributed something of interest, and was a debater of superior ability. He was a man of superb and magnetic presence, more than six feet tall, with a beaming countenance and sparkling eye, which always attracted attention in any company. He was modest as a girl, generous and charitable; a veritable philanthropist whose noble deeds of charity will be sadly missed by large numbers of the poor and afflicted.

WILLIAM THURMAN, M.D., New York City, July 21. He was an alumnus of the College of the City of New York (1860) and of the College of Physicians and Surgeons, New York (1864), also a Fellow of both the Academy of Medicine and the New York County Medical Association. After his service on the House Staff of the New York Hospital, he became House Physician of the Northern Dispensary and subsequently attending surgeon of the Children's Free Hospital St. John's Guild.

JOHN JAMES HERVEY LOVE, M.D., New York University Medical College, 1855, died suddenly at his home in Montclair, N. J., July 30. He was an alumnus of Lafayette College, Easton, Pa., class 1851, and during the war while serving as surgeon of the 13th Regiment New Jersey Volunteer Infantry was also surgeon of the 3d Brigade, 1st Division, 12th Army Corps, March, 1863, and surgeon 1st Division, 12th Army Corps, Army of the Potomac from August, 1863, until his honorable discharge Jan. 23, 1864. As a man of affairs and a practitioner, he was widely known.

CHARLES O. BAKER, M.D., Auburn, N. Y., died July 16. He was born in 1852, was graduated in 1874 from the College of Medicine, Syracuse (N. Y.) University, practiced general medicine until 1891, when after a special operative course under Lawson Tait, he limited himself to abdominal surgery.

JOHN CONDICT PENNINGTON, M.D., College of Physicians and Surgeons, New York, 1875, died in New York City, July 27. He was a son of Dr. Samuel H. Pennington of Newark, N. J. For some years his name was in the list of physicians at Colorado Springs.

LOUIS F. KIEFER, M.D., College of Physicians and Surgeons New York, 1886, a resident practitioner of New York City, died there July 23, aged 45 years. He was unmarried and a member of several fraternal societies.

GREIG SMITH, M.D., Bristol, England, Member of Royal College of Surgery of England; Surgeon of Royal Infirmary, Bristol; Professor of Surgical Pathology, Medical College of Bristol; Medical Examiner of the University of Aberdeen, and well known by his works on abdominal surgery. His treatise on abdominal surgery, published in 1887, placed him in the first rank.

WILLIAM T. HOBBS, M.D., Mound, Ill., July 18, aged 58 years.——Simson P. Hubbard, M.D., Taunton, Mass., July 20, aged 70 years.——John Le Crone, M.D., Effingham, Ill., aged 81 years.——John Wesley Noyes, M.D., Racine, Wis., July 24, aged 76 years.——C. S. Park, M.D., Mt. Pleasant, Mich., July 25.——W. A. Russell, M.D., Pittsfield, Mass., July 19.——Eugene F. Sanger, M.D., Bangor, Me., July 24, aged 68 years.——D. C. Scull, M.D., Lebanon, Ind., July 24.——William W. Skinner, M.D., Forrest, Ill., July 25, aged 27 years.——A. M. Stebbins, M.D., Fertile, Minn., July 21.——Edward Storck, M.D., Buffalo, N. Y., July 26, aged 66 years.——H. B. Smith, M.D., McAlester, I. T., July 17.——Judson J. Taylor, M.D., Syracuse, N. Y., July 26, aged 59 years.

SOCIETY NEWS.

Central District Medical Association of Iowa.—At the annual meeting of the Central District Medical Association of Iowa, held at Boone, Iowa, June 15, 1897, the following resolutions were adopted and ordered printed and a copy furnished each member of the society:

WHEREAS, Complaints of various characters and kinds have been made to the Committee of Ethics and the Board of Censors, therefore be it hereby

Resolved, That it shall be deemed cause of expulsion or bar to admission for any member of this society either directly or indirectly to consult or hold counsel with any irregular practitioner of medicine. G. H. STANGER, Secretary.

Boone, Iowa, July 1, 1897.

Rocky Mountain Doctors.—Delegates from the inter-mountain States and Territories organized the Rocky Mountain Interstate Medical Association at Salt Lake City, July 24. The officers chosen were: C. P. Hough of Salt Lake, president; C. K. Cole of Helena, vice-president; Clayton Parkhill of Denver, second vice-president; E. Steuver of Wyoming, secretary and treasurer. The meeting for 1898 will be in Denver during the meeting of the AMERICAN MEDICAL ASSOCIATION.

MISCELLANY.

Personal.—Dr. Edward G. Janeway has been elected President of the faculty of Bellevue Hospital Medical College, N. Y., to succeed Dr. William T. Lusk, deceased.

The Missouri Medical League has been organized at St. Louis. Its object is "to unite doctors of good standing for mutual protection" and to collect evidence of hospital and dispensary abuse and to exclude well-to-do persons from medical charities.

Tuberculosis in Birds and Fishes.—Recent investigations have established the fact that the tuberculosis of birds and fishes is the same as human tuberculosis, but that it can not be transmitted to man owing to its lesser virulence in the cold-blooded animals.—*Bull. de l' Acad. de Méd.*, June 29.

International Prize Competition.—The *St. Petersb. Med. Woch.* announces that the Moscow "City Duma" has founded a prize as a memorial of the International Congress, to be awarded tri-annually for the best work on the subject of public health, prevention of epidemics, etc. It will consist of 5,000 francs and be awarded irrespective of nationality.

"The Pennsylvania Medical Journal."—At its recent meeting, the Pennsylvania State Medical Society made the *Pittsburg Medical Review* the official organ for publishing the transactions of that Society, and the *Review* becomes with the July number, the *Pennsylvania Medical Journal.* All success to the *Review* under its new name!

Correction.—Dr. E. A. de Schweinitz of Washington, D. C., says that in his article on "Antitoxic Serum for Tuberculosis" (JOURNAL, July 17, page 114) that the reference to Dr. Trudeau should be changed as follows: "Dr. Trudeau noted a reduction of temperature after the use of this serum in one case, and Dr. Stubbert, etc."

A Mild Sensation in Paris.—The Hospital Aubervilliers recently lost through thieves a number of rabbits kept for the culture of diphtheria, cholera, bubonic plague and other germs. The bacteriologists averted a panic by the assurance that if the rabbits were sold to be eaten there could be no danger if they were well cooked. So far as can be learned the advice was considerately taken.

Tattooing, according to the *Press and Circular*, was an ancient method of treatment, the forerunner of scarification. A mummy discovered in Egypt in 1891, that of a priestess of Hator, some five thousand years old, displays traces of a methodical tattooing of the abdomen, suggesting that the cause of death was generalized peritonitis. Tattooing is still resorted to in Egypt as a remedy for periostitis, arthritis and synovitis, and even for migraine and neuralgia.

Damages for a Cough.—The market value of a cough was the question submitted to the Birmingham (England) County Court. A barrister sued a railroad company for £50 for discomfort suffered by smoking being allowed in a waiting-room at a station and in non-smoking carriages. The smoking aggravated the barrister's cough, and he was awarded £10.—*Law Notes.*

Mexican Physicians en route for Moscow.—The *Normania* which left New York July 27 numbered among the passengers the following: Francisco Vasquez Gomez, Dr. Ismael Prieto, Dr. Carlos Tejedo and wife, Dr. I. Urquiza and family, Mr. Lorenzo Chavez, Dr. Alonzo, Dr. Eduardo Liccaga and family; Dr. Francisco P. Bernaldez, Roberto Garcia, Dr. Jose Terres and family, Dr. Domingo Orvananos, Dr. J. L. Vallejo, Mr. Salvador Echagray, Dr. Manuel Toussaint, Dr. Porfirio Parra, Dr. Francisco Hurtado, Dr. Vergara Lopez, Dr. M. Carmond y Valle, Mr. Luis S. Carmona, Rafael Caraza and wife, J. M. Bandera, Dr. Eduardo Garcia, Dr. Antonio Carbajal, Alberto Losa y Gomez, Dr. Angel Gavino, Dr. Tomas Noriega, Dr. Rafael Riba, Nicolas Ramirez Arrellano, Dr. Salvador Garciadiego and Dr. Morales and family. The remainder of the party are on their way from Mexico. Some of the delegates will proceed to the Moscow convention by way of Berlin and others by way of Paris.

The Human Lorgnette.—Gaston Seguy, the first man in France to repeat the experiments of Roentgen and who has been most of his time occupied in the laboratory of Le Roux in studying vacuums and the properties of cathode rays, has constructed what he styles a "human lorgnette," which will show the organs of the human body with minute exactitude. The French Department of Customs has applied the instrument with signal success in the examination of sealed packages suspected of containing dutiable articles. The apparatus in question is not larger than a parlor stereopticon and is as readily handled. In a comparatively small compass Seguy has put the various components of his contrivance, such as electric storage cells, transformers and tubes, all of which are essential for the X-ray.

Heredity and Trauma in Intestinal Carcinoma.—Boas has been collecting statistics on these points and finds heredity active in only three out of sixty-two certain cases (forty-nine men and thirteen women). In nine the carcinoma could be traced directly to a trauma with four years to half a year as the limit of intervening time. He states that carcinoma may exist for years without developing, as is proved by the unsuspected carcinomas found at necropsies, and he is inclined to ascribe a latent stage—a year and a half at longest—to cancer of the stomach. Some influence, usually of a mechanical nature, starts them into active growth, and this applies especially to the gastro-intestinal canal. But trauma of a member would not suffice; there must be some *commotio* of the whole organism or of the entire gastro-intestinal tract or part of it to start a carcinoma to proliferating from this cause. The age is also important, the younger the individual the more probable the connection.—*Therap. Woch.*, July 4.

Medical Schools in Denver.—The supreme court of the State of Colorado has forbidden the University of Colorado from carrying on any part of its Medical Department in Denver because the constitution locates the University itself at Boulder. In consequence of this the members of the Faculty resident in Denver have resigned and the larger portion of them have united with the Medical Department of the University of Denver. Among those who have thus strengthened the Denver Medical School are Dr. H. T. Pershing in diseases of the mind and nervous system; Drs. S. G. Bonney and H. B. Whitney in medicine; Dr. Charles A. Powers in surgery; Dr. Walter A. Jayne in gynecology; Dr. George B. Packard in orthopedics; Drs. L. E. Lemen and J. W. O'Connor in clinical surgery; Dr. T. E. Taylor in clinical obstetrics and Dr. John Chase in clinical ophthalmology. The faculty of the school has been further enlarged by the election of Dr. P. V. Carlin in obstetrics, Drs. W. H. Bergtold and W. B. Fenn in pathology and Dr. Carroll E. Edson in therapeutics.

Sterilization of Surgical Instruments.—G. Denigès has combined Marechal's suggestion that instruments can be protected from rust indefinitely by the addition of a small quantity of some alkaline (*vide* JOURNAL, Vol. xxvii, p. 547), with the use of a powerful antiseptic, and announces that instruments thus treated are absolutely sterilized while they suffer no injury, even if left for months in the antiseptic solution. His formula is mercuric cyanid 2 to 5 grams in 1 liter water, to which are added 5 grams sodium borate or carbonate. It is also remarkably effective and harmless for disinfecting the hands. As the efficacy of sodium bicarbonate has been recently proclaimed in the treatment of purulent wounds (JOURNAL, Vol. xxviii, p. 655), he adds that this might be substituted for the borate. The present low price of mercuric cyanid would be still further

reduced if there were more demand for it. Its toxicity has been much exaggerated, as 1 molecule, Cy_2Hg, only contains 1·5 cyanogen to 4·5 mercury. It is much superior for the purpose to the bichlorid; it is less caustic, and does not affect the albuminoids, which are coagulated by sublimate. He hopes to see his formula generally adopted in outside antisepsis and hospital practice.—*Bull. de la Soc. de Pharm. de Bordeaux*, June, 1897.

Validity of Minnesota Law as to Committment of Insane.—The supreme court of Minnesota holds, in the case of State v. Kilbourne, that subchapter 14, of chapter 46, General Laws of 1889, did not authorize the probate court to proceed to find a person insane, without bringing him into court, or giving him notice of the proceedings being taken against him, or an opportunity to defend, and is not for any such reason unconstitutional because not providing for due process of law. Properly construed, it says the law simply authorizes the court to dispense with the issuing of a warrant when the alleged insane person can be brought into court without it. The court further holds that in order to collaterally impeach the judgment of the probate court in proceedings to commit an alleged insane person to the hospital for the insane, the want of jurisdiction must affirmatively appear by the record itself. The fact that it does not appear that any warrant had been issued for the arrest of the alleged insane person, or that he was present in court at any time during the proceedings, is not sufficient to impeach the judgment or show want of jurisdiction. The record of proceedings in the court does not show want of jurisdiction by its own mere silence.

The Morbid Histology of Epileptic Idiocy and Epileptic Imbecility.—As a result of histologic studies, Andriezen (*British Medical Journal*, May 1, 1897, p. 1081) has found in cases of epileptic idiocy and epileptic imbecility, a diffuse sclerosis or overgrowth of the neuroglia fiber cells in the brain substance and a co-extensive change in the nerve cells. The latter was of two kinds: 1. Defective development (fewness and slenderness) of protoplasmic processes. 2. Increase in amount and diffusion of pigment throughout the cell body, especially its basal part, and a displacement of the nucleus toward the apex of the cell. Later changes were a gradual destruction and atrophy of the nerve-cell processes, consequent on or co-extensive with the further overgrowth of the glia (sclerosis), until whole groups or islands of cells might be so destroyed. There is thus a common pathogenic basis for epileptic idiocy aud epileptic imbecility, and for focal epilepsy occurring in the child, namely, anomalies of growth and nutrition impressed upon the growing nerve cell as well as upon the neuroglia cell, and affecting predominantly this or that area of the brain, frequently in territories corresponding to a particular vascular distribution. In cases of epilepsy supervening in adult life, after the brain cells had attained complete development, the changes found were, as regards the nerve cells, only of the second kind. But in addition these very frequently exhibited intranuclear vacuolation of the cortical cells also. The significance of the changes especially associated with the epileptic neurosis (more particularly when occurring congenitally or in early life, and therefore entailing also a more or less obvious degree of mental impairment) is still more striking when it is remembered that in the brains of non-epileptic idiots and imbeciles similar lesions are generally absent, and the convolutionary forms may be, and often are, plump and well formed, though inclined to simplicity of arrangement. These are to be looked on as general arrests of development, not complicated of course with the epileptic neurosis. In the brains of non-epileptic imbeciles sclerosis and microgyria are both conspicuous by their absence. When the epileptic neurosis is present, however, this process also is present, and the other changes detailed are also present in varying degrees. It is in the combination of these two classes of pathologic changes that lesions are to be found, the surest indication, the seal as it were, of epileptic idiocy or epileptic imbecility in the brain.

Right of Appeal from Medical Board.—Does the Montana statute allow an appeal to an applicant who has been refused a certificate by the medical board authorizing him to practice medicine and surgery in the State on the ground that the applicant's examination papers show that he has not the requisite learning to entitle him to such certificate? This question was raised in the case of State v. District Court, and was passed upon by the supreme court of Montana. Its decision is of increased importance because a number of other States have similar statutes, and this appears to be the first authoritative adjudication of the question. The language especially involved is as follows: "In all cases of the refusal or revocation of a certificate to practice medicine by the said board, the person aggrieved thereby may appeal from the decision of the board to the district court of the county in which such revocation or refusal was made." It was argued by the attorney-general, that this provision only gave the right of appeal where the certificate was refused or revoked by the board for unprofessional, dishonorable, or immoral conduct, and that there was no appeal from the refusal of the board to issue a certificate on the ground of incompetency of the applicant. But, in examining the statute, the supreme court said it found no language that restricted the right of appeal to any particular class of cases. The terms of the statute are general, giving the right of appeal "in all cases of the refusal or revocation of a certificate to practice medicine by the said board." So it holds that it gives the right of appeal in the class of cases referred to in the question. Nay more, it holds that the trial in the district court, awkward, difficult, and unsatisfactory as same might be, would have to be *de novo*. Whether or not such laws are wise or unwise, politic or impolitic, it says is for the legislature to determine. Justice Hunt adds, in a concurring opinion, that judges often have to pass upon equally difficult questions, involving study and knowledge of abstruse sciences, and when these difficult problems arise they are permitted to call to their aid those who are most proficient and experienced in the branches of knowledge required to settle them. Nor does he think that courts will be disposed to reverse medical boards, if they can help doing it, where there is no wilful wrong or prejudice proved.

Societies.

The following sessions are noted:

Illinois.—Peoria City Medical Society, August 3.

Iowa.—Bussey District Medical Society, Tracy, July 29. Jasper County Medical Society, Newton, July 20.

Kansas.—Eastern Kansas Medical Society, Leavenworth, July 20.

Kentucky.—Henderson Medical Society, Henderson, July 28.

Maryland.—Baltimore County Medical Association, Towson, July 15.

Massachusetts.—Hampden District Medical Association, Springfield, July 20.

New York.—Northern District Branch of New York State Medical Association, Utica, July 20. Oneida County Medical Society, Utica, July 13.

Ohio.—Lorain County Medical Society, Lorain, July 20. Northeastern Ohio Medical Association, Steubenville, July 13. Northern Ohio District Medical Society, Sandusky, July 29. Union Medical Association, Lisbon, August 12.

Pennsylvania.—Tri-State Medical Association of Western Maryland, Western Pennsylvania and West Virginia, Bedford, Pa., July 15. Westmoreland County Medical Society, West Newton, July 15.

Rhode Island.—Newport Medical Society, July 21.

Vermont.—Union Medical Society, Manchester, July 20.

Wisconsin.—Fox River Valley Medical Association, Marinette, July 27. Inter-county Medical Society, Ashland, July 13. Inter-urban Academy of Medicine, Superior, July 16. Northwestern Medical Association, Stevens Point, July 14.

Ontario, Canada.—Lambton Medical Association, Lambton, July 21.

Louisville.

Dr. William Bailey, ex-president of the American Public Health Association, has received a notification from Hon. Gardner G. Hubbard, chief of the Committee on Awards of the Tennessee Centennial Exposition, of his appointment by Dr.

Geo. M. Sternberg, chairman of the Committee on Awards for the Department of Hygiene, as a member of that Committee. The Committee will convene at Nashville October 8, and will probably be in session about one week.

PENSION EXAMINERS.—The appointment of the Republican members of this Board has recently been announced as follows: Drs. William Bailey, Allen Kelch, J. Hunter Peake. It seems that under a recent ruling the members of the Board appointed by a Democratic President can not be removed as they are protected by the Civil Service, but the appointment of the three republican members will divide the work among six instead of three as formerly.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.—Arrangements are being rapidly completed for the entertainment of the visiting members and friends of this Association, and from the present outlook there will be a large attendance and a full program. One of the features of the meeting will be a souvenir button provided by the local committee, which will contain an engraved likeness of Ephraim McDowell, which will be appreciated by all those receiving them. Louisville is justly proud of her reputation for hospitality and every endeavor will be made to live up to it.

BRITISH MEDICAL ASSOCIATION.—Dr. J. B. Marvin, ex-president of the Kentucky State Medical Society, was at the last meeting of that Society appointed a delegate to represent the Society at the next meeting of the British Medical Association at Montreal. Dr. Henry E. Tuley has also received an invitation from the Montreal branch of the British Medical Association and will attend.

Washington.

ANNUAL REPORT OF THE CORONER.—The Commissioners have received the report of Coroner Hammett for the year ending June 30, 1897, which shows as follows: The number of deaths during the year were 581 and are divided as follows: Accidental deaths, 100; suicide, 33; homicidal, 12; violent deaths, 145; deaths from natural causes, 328; still births, 108. There were 43 autopsies and 34 inquests held during the year.

NEW INSPECTORS APPOINTED.—The Commissioners have appointed Drs. Walter D. Cannon and Edwin L. D. Roach sanitary and food inspectors for the District.

DRUG INSPECTOR RECOMMENDED.—The annual report of the Commissioners of Pharmacy was submitted to the Commissioners July 31. It shows during the year a total of eight pharmacists registered upon examination and thirty-nine upon diploma. A recommendation is made in the report for an inspector of drugs as follows: The appointment of an inspector of drugs, who would have the right to go into the pharmacies of the city and condemn any medicine offered which does not measure up to the requirements of the United States Pharmacopeia, is earnestly recommended. Instances in faulty manufacture of preparations are cited.

DENTAL EXAMINERS' REPORT.—The annual report of the Board of Dental Examiners has been submitted to the Commissioners. It shows that certificates entitling to registration have been issued to twenty two persons. The total number of dentists registered in the city is now 300.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from July 24 to 30, 1897.

Col. Dallas Bache, Asst. Surgeon-General, U. S. A. (Omaha, Neb.), is granted leave of absence for one month, with permission to apply for an extension of one month.

Capt. John L. Phillips, Asst. Surgeon, is granted leave of absence for four months, to take effect upon the arrival of Capt. Frank R. Keefer, Asst. Surgeon, at Ft. Walla Walla, Washington.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the two weeks ending July 24, 1897.

Surgeon C. G. Herndon, ordered to special duty at naval rendezvous, Duluth, Minn., July 19.

Asst. Surgeon S. B. Palmer, detached from the "Texas" and ordered to the "Annapolis" July 20.

Asst. Surgeon F. L. Pleadwell, detached from the "Constellation" 17th inst., and ordered to the "Texas" July 20.

P. A. Surgeon G. B. Wilson, ordered to the "Constellation."

P. A. Surgeon L. W. Spratling, detached from naval hospital, Norfolk, and ordered to naval hospital, Philadelphia, July 19.

P. A. Surgeon R. M. Kennedy, detached from naval hospital, Philadelphia, July 19, and ordered to naval hospital, Norfolk.

Asst. Surgeon J. C. Pryor, detached from naval laboratory, New York, and ordered to the naval hospital, Mare Island, Cal.

Asst. Surgeon W. M. Wheeler, detached from naval hospital, Mare Island, and ordered to the "Oregon."

Asst. Surgeon A. Farenholt, detached from the "Oregon" with insane patient to Washington, then to the "Vermont."

Asst. Surgeon C. E. Riggs, detached from the "Vermont" and ordered to the New York navy yard.

Medical Inspector A. F. Price, detached from the New York navy yard July 14 and ordered to the "Olympia" as fleet surgeon.

Medical Inspector J. A. Hawke, ordered to the New York navy yard August 14.

Medical Inspector J. G. Ayers, detached from the "Olympia" as fleet surgeon, ordered home and granted two months' leave.

Surgeon H. E. Ames, detached from the "Cincinnati" July 25, and ordered to the naval hospital, Yokohama, per steamer August 14.

Surgeon J. C. Byrnes, detached from the Norfolk navy yard and ordered to the "Cincinnati" July 25.

Surgeon P. Fitzsimons, detached from naval hospital, Yokohama, on relief, ordered home and placed on waiting orders.

CHANGE OF ADDRESS.

Bowers, W. C., from La Place to Rooms 210-212 Milliken Blk., Decatur, Ill.; Bushang, L. B., from Maple Hill to Lyndon, Kan.; Bosworth, F. H., from 26 W. 46th Street, to 41 Park Avenue, New York, N. Y.

Curts, F. G., from Peoria to 208 Genesee Street, Waukegan, Ill.; Cheshire, M. U., from Anamosa to Cascade, Iowa; Crawford, S. K., from Baltimore, Md., to 440 Hermitage Avenue, Chicago, Ill; Carter, R. H., from Belton, Texas to Lynnville, Tenn.; Campbell, R. A, from Bellingham to 267 Cedar Avenue, Minneapolis, Minn.; Carpenter, Julia W., from Cincinnati Ohio, to Bay View, Mich. (Temporary address).

Givens, J. W., from Los Angeles, Cal., to Blackfoot, Idaho.

Hartman, F. T., from Anamosa, Iowa, to Victoria, Texas; Hatch, W., Grant, from Schleisingerville, Wis., to 357 S. Lincoln Street, Chicago, Ill.; Heise, W. F. C., from 215 S. Winchester Avenue to Presbyterian Hospital, Chicago, Ill.; Hakanson A., from 193 92d Street to 7746 Coles Avenue, Chicago, Ill.

Lehon, J. W., from Dunlap to Aurora, Ill.

Ohlmacher, A. P., from Cleveland to Gallipolis, Ohio.

Rohr, S. M., from Geyserville ro Santa Rosa, Cal.; Rucker, H. N., from 524 13th Street to 668 14th Street, Oakland, Cal.

Starr, J. N, from Snohomish to Room 9 Fernwell Bldg., Spokane, Wash.

Whammond, A. A., from 1104 W. 12th Street to 1329 S. 40th Avenue, Chicago, Ill.; Womeldorf, J. M., from Chicago, Ill., to Hartley, Iowa; Wadey, B. J., from Esmond, Ill., to Belleville, Wis.; West, M., from Camden to 1302 Pacific Avenue, Atlantic City, N. J.; Wilkinson, D. L., from Boiling to Montevollo, Ala.

LETTERS RECEIVED.

Anderson, S. Lane, Chadd's Ford, Pa.; Arnold, C. D., El Reno, O. T.; Ayres, S. C., Cincinnati, Ohio.

Baughman, J. A., Neoga, Ill.; Ball, M. V., Philadelphia, Pa.; Bremer, L., St. Louis, Mo.; Buell, Mary C., Hampton, Iowa; Brown, Mark A., Cincinnati, Ohio; Boehringer & Soehne, (2) New York, N. Y.; Binswanger, Otto S., Portland, Ore.; Bowman, David E., Toledo, Ohio.

Crawford, S. K, Chicago, Ill.; Christopher, Hiram St. Joseph, Mo.; Curry, Wm., Palmyra, Neb.; Coomes, M. F., Louisville, Ky.

de Schweinitz, E. A., (2) Washington, D. C.; Dickinson, G. E., Upper Fairmount, Md.

Eichberg, Joseph, Cincinnati, Ohio; Elliott, A. K., New York, N. Y.; Egan, J. A., Springfield, Ill.; Edson, Carroll E., Denver, Colo.; Eve, Paul F., Nashville, Tenn.

Fairbairn & Sons, Edinburgh, Scotland; Feltwell, A. L., Altoona, Pa. Gihon, A. L., Sykesville, Md.; Griffith, B. B., Sharpe, Ky.

Hummel, A. L., Advertising Agency, New York, N. Y.; Hospital College of Medicine, (2) Louisville, Ky.; Hays, T. A., Burns City, Ind.; Horn & Caylor, Pennville, Ind.; Herdman, W. J., Ann Arbor, Mich.; Herrick, C. L., Albuquerque, N. M.

Imperial Granum Co., New Haven, Conn.

Katharmon Chemical Co., St. Louis, Mo.; Karsten, A. C., Horicon, Wis.

Lowenstein, Fred P., New York, N. Y.; Lofton, L., Emporia, Va.; Loeb, H. W., (2) St. Louis, Mo.; Lewis, L. R., Auburn, N. Y. Levy, E. C., Richmond, Va.; Library Surgeon General's Office, Washington, D. C.

McCormack, A. T., Bowling Green, Ky.; McClellan, B. R., Xenia, Ohio; Montgomery, Liston H., (2) Chicago, Ill.; McDougal, J. G., New Lexington, Ohio.

Midgley, R. J., Chicago, Ill.; Mulford, H. K. Co., Philadelphia, Pa.

New York Pharmacal Association, Yonkers, N. Y.; Norwich Pharmacal Co., The, Norwich, N. Y.

Ohlmacher, A. P., Gallipolis, Ohio.

Paquin, Paul, (2) St. Louis, Mo.; Patterson, John H., Chicago, Ill.; Parmele, Chas. Roome Co., New York, N. Y.; Parker, J. C., Farmington, N. H.

Reber, Wendell, Philadelphia, Pa.; Reynolds, Dudley S., Louisville, Ky.; Reynolds, H. D., New York, N. Y.

Stallman & Fulton, New York, N. Y.; Stuver, E., Rawlins, Wyo.; Solis-Cohen, J., Philadelphia, Pa.; Schering & Glatz, New York, N. Y.; Schooler, Lewis, Des Moines, Iowa; Smith, Kine & French Co., Philadelphia, Pa.

Tuley, Henry E., Louisville, Ky.

Van Etten, C. S., Rhinebeck, N. Y.

West, C. J., Washington, D. C.; Wait, F. S., New York, N. Y.; Woodruff, T. A., Chicago, Ill.; Wine, W. B., Twin Bridges, Mont.; Woodruff, L., Alton, Ohio; Williams, Anna Phillips, Nahant, Mass.; Wandless, Henry W., Dallas, Texas; Welch, William H, (2) Baltimore, Md.

PAMPHLETS RECEIVED.

Further Report of Cases Treated with Anti-tubercle Serum. By Paul Paquin, M.D., 8 pages. Reprinted from the Journal of the American Medical Association.

Medical College of Alabama. Announcement for 1897-8

Mouths of our School Children, The. By Carl Theodor Gramm, M.D. 4 pages. Reprinted from Columbus Medical Journal.

Neurological Progress in America. By C. H. Hughes, M.D. 30 pages. Reprinted from Alienist and Neurologist.

New Orleans University Year Book, 1896-97.

Position or Posture of the Patient During Parturition with Special Reference to the Merits of the Walcher Position. By Andrew F. Currier, M.D. 16 pages. Reprinted from Medical News.

St. Elizabeth Hospital Reports. 42 pages. La Fayette, Ind.

Ventral Hernia Resulting after Abdominal Section and its Treatment, By Andrew F. Currier, M.D. 12 pages. Illustrated. Reprinted from Annals of Gynecology and Pediatry.